THE SEMINAR-CUM-TRAINING PROGRAMMES

for

S. I. E. PERSONNEL

STATE INSTITUTE OF EDUCATION
Govt. of West Bengal
695/72

REPORT

DEPARTMENT OF TEACHER EDUCATION
NATIONAL INSTITUTE OF EDUCATION
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH & TRA
Sri Aurobindo Marg, New Delhi-16.

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FOREWORD

The State Institutes of Education have to play a very vital role in improving the quality of school education and teacher education in India. Many of the State Institutes have chosen to concentrate their efforts, at least during the initial stages, to improve primary education as well as primary teacher education in their respective areas. The members of the staff of these institutions have, therefore, to be in close touch with new ideas and innovations in various aspects of primary education and primary teacher education.

Since the State Institutes of Education have been established in different States only during the past few years, some of the staff members are obviously not fully acquainted with new developments in the field of their work. Also, some staff members are drawn from the administrative cadre who have to reorientate themselves in new concepts and techniques pertaining to various aspects of primary education and teacher education. In addition, the staff members are called upon to a variety of projects and programmes from time to time and hence, their acquaintance with all major developments becomes essential.

In order to meet these needs, the Department of Teacher Education of the National Council of Educational Research and Training has launched a programme of orientating the members of the staff of the State Institutes of Education through a series of seminar-cum-training courses. The objective of these programmes is to familiarise the staff members of the S.I.Es with the new developments and ideas in the field of primary education and teacher education that have recently emerg at the national and state levels. A number of developm have taken place during the past few years through the National Council of Educational Research & Training, State Institutes of Education and such other organisati in the field of curriculum, instructional materials and methods, evaluation procedures, etc which should be shared by all concerned. Also, some new projects and programmes have developed in respect of Education for National Integration, Population Education, Work Experi Science Education, Use of Supplementary Reading Materia and so forth. All these developments and innovations have implications for primary teacher education and als secondary teacher education. In order to introduce the innovations in a sound and systematic manner it is but essential for the personnel working in the S.I.Es and even in the National Institute of Education to familiar themselves with them. On the basis of their initial acquaintance with these new areas of development it may also be possible for them to choose certain aspects for more intensive study and development of expertise on their own as also through other special programmes.

With a view to fulfilling this new need that has arisen on account of special responsibilities delegated to the S.I.Es the Department of Teacher Education planned a series of three courses to involve almost all staff members of these institutes as mentioned earlier. Accordingly three programmes have been conducted, first in November, 1970, second in February-March, 1971, and third in September, 1971. The duration of the programmes was 2 weeks in case of the first and the third course and more than 2 weeks for the second course.

The report is a summary of the deliberations of all the three programmes. It includes brief statements regarding various topics discussed in the seminars for providing a comprehensive orientation to the participants. The topics include new trends in curriculum development, new methods of instruction, educational technology, new concepts and techniques of educational evaluation, developments in the teaching of science, mathematics, social studies and languages, education for national integration, population education, work experience and other significant issues in the field of primary education and also secondary education which have implications for primary and secondary teacher education.

The successful organisation of these programmes would not have been possible without the active help of different departments of the N.I.E. I take this opportunity to convey our gratefulness to all the Heads and members of the staff of these departments who extended their active cooperation and helped us in organising these programmes.

I am also thankful to the Principals/Directors of the S.I.E.s and the participants for their response to our effort of organising the programmes for our mutual benefit.

Miss C. Mehra and Mr. K.R.P. Singh of the Department of Teacher Education undertook the major responsibility of organising and coordinating these programmes. Other staff members also extended their cooperation in a variety of ways. I am grateful to all of them.

It is hoped that the report will prove useful to the participants of all the three programmes, to other members of the S.I.Es and also to other personnel who work in the field of controling the quality of primary and secondary teacher education as well as school education.

New Delhi-16
December 1971.

R.H. Dave
Head of the Department

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REPORT OF THE SEMINAR-CUM-TRAINING PROGRAMMES FOR THE STAFF OF THE STATE INSTITUTES OF EDUCATION

The Department of Teacher Education organised three seminar-cum-training programmes in a series for the S.I.E. personnel at the N.I.E. Campus, New Delhi. Dr. R.H. Dave, Head, Department of Teacher Education was the Director of all the three programmes. Miss C. Mehra acted as coordinator of the programmes and Shri R.P. Singh assisted in the organization of the seminar. The programmes were planned keeping in view the areas in which the S.I.E's are working, and also the areas of primary education and teacher education in which the NCERT has been active.

Duration

The duration of these programmes were as follows:

		Date
First Programme	:	16.11.70 to 28.11.70
Second Programme	:	22. 2.71 to 10. 3.71
Third Programme	:	13. 9.71 to 25. 9.71

Objectives

The chief purpose of these programmes was to discuss new ideas and innovations in the field of curriculum, instructional material and methods, evaluation, teaching aids, and other significant issues from the point of view of primary education and to discuss implications of these ideas and innovations to the programme of teacher education and the State Institutes of Education.

Two programmes (the first and the third) were formally inaugurated by Prof. S.V.C. Aiya, Director, NCERT. Prof. Aiya in his inaugural address explained the importance and purpose of the seminar. No formal inauguration was held for the second programme. Dr. R.H. Dave, Head of the Department of Teacher Education, welcomed the participants of all the three seminar-cum-training programmes.

Dr. Dave explained the purpose and scope of organizing such courses. He emphasised that these courses provide a forum for mutual exchange of ideas and new developments in education among personnel of the State Institutes of Education and National Institute of Education. The courses, he stressed, were envisaged to enable the field workers in the State Institutes of Education, to brush up their knowledge and experiences in the field of education, considering and reviewing the innovations from a global perspective. He emphasised the need of such programmes in view of ~~the~~ work of the S.I.E's that encompasses the whole field of education. He concluded with an optimistic remark hoping that such courses would provide scope for better coordination of the programmes of National Institute of Education and the State Institutes of Education because these organizations work for the common purpose of qualitative improvement of education.

The Work Schedule

There used to be, generally, two sessions: the morning sessions from 10.30 a.m. to 1.30 p.m. and the afternoon sessions from 2.30 p.m. to 4.30 or 5.00 p.m. with occasional variations according to topics under discussion.

Printed, memeographed and typed material relevant to the various topics was supplied to the participants. Some material from the State Institutes of Education was also distributed to the participants.

Main Features of the Programme

The programmes mainly comprised of lecture-cum-discussion method. The main areas of discussion were brought under the following heads:

1. Curriculum and Instructional Material
2. Teaching of Social Studies
3. Educational Technology
4. Language Teaching

5. Teaching of Mathematics and Science
6. Educational Psychology
7. Teaching Aids (Satellite Communication)
8. Evaluation
9. Education for National Integration
10. Population Education
11. Work Experience
12. Some other significant issues in primary education such as ungraded system, open school, condensed courses etc.

(The detailed programme is given in Appendix 'A')

(Synopsis of the papers discussed is given in Appendix 'B')

Other Activities During the Programme

A. Visits

1. Language Laboratory

The participants of all the three programmes visited the Language Laboratory of the N.I.E. which is working on the teaching of second language or foriegn language. They witnessed a demonstration there.

2. Instructional Material Centre

The Instructional Material Centre of the Department of Science Education, N.I.E was also visited by the participants of all the three programmes. The centre has ample instructional material and information in the field of Science Education about other countries. The centre also displays instructional material prepared by the Department of Science Education. It disseminates this information to the various agencies in the country and supplies instructional material to some of the schools in different states. The centre at times organizes exhibitions etc. for the benefit of those interested in science education and instructional material for schools.

3. Gandhi Darshan

Gandh Darshan Exhibition, particularly the Constructive Work Section, different cottage industry type production activities and Gobar Gas plant was seen by the participants of the second programme.

4. Municipal Basic School, Lajpatnagar

This school was visited by the participants of the first and third programme. They observed the problem solving approach adopted by the school for imparting Work Experience and also the forward look given to the programme.

5. Mother's International School

Participants of the first programme visited Mother's International School. This school is being used as Demonstration school for Teaching of Science at the primary and middle stages. Equipment has also been provided to the school by the NCERT.

B. Educational Films

The following educational films were screened for the participants of the three programmes.

(i) Tips for Teachers

The film presents the three 'P's of good teaching; explains the place and value of teachers Personablity; shows the importance of Preparations and gives an example of how the Presentation of the material is being accomplished.

(ii) Training the Rural Teachers

The India of today requires a vast army of rural teachers who can impart Fundamental Education to the youth in the rural areas. The film is about the trainii of rural teachers about the basic concepts of their syllabus.

(iii) Field Trips for Discovery

The objective of this film was to show the importance of educational trips for making the classroom instruction rich and interesting and also to indicate the importance of discovering things by the students themselves.

Note: Each group was shown 3/4 films.

(iv) General Objectives

The objective of this film was to show how to achieve the objectives of a lesson.

(v) Teachers in the Making

The film shows the activities of the students, teachers under training and teachers and the association between the centre and the neighbouring villages in matters of rural uplift. The basic education system in this film, shows an achieving practical reality is based on agriculture. (The film is produced at the Basic Training Centre, Loni, in Bombay State).

(vi) Jamia Millia Islamia

It traces the growth of Jamia Millia Islamia and depicts the various aspects of education imparted to children. Emphasis is laid on community living, and children are encouraged to do their own research by adopting the project method.

(vii) Importance of Goals

This film follows the case of a thirteen year old boy to illustrate the principle that all education is essentially a process of attaining basic, meaningful goals. In the classroom the child is bored. Outside, a series of incidents used to show that the child shows interest where a tangible goal provides the necessary incentive to make him want to learn. Somethi to work towards, in terms of young minds and young desires, can spell the differences between eager interested students and those for whom school is both boring and dull.

C. Programmes Discussed by the Representatives of State Institutes of Education (see Appendix 'C')

1. Inservice education of primary school teachers in the state of Punjab. : S.I.E., Chand
2. The changes in educational programmes in Mysore. : S.I.E., Mysor (Bangalore)
3. Professional growth of primary teachers through problem solving essay competition. : S.I.E., Oriss (Bhubaneshwar)
4. Shift system in Kerala : S.I.E., Keral (Trivandrum)
5. Orientation of teacher educators and supervision at the elementary level according to new syllabus. : S.I.E., Jammu Kashmir, (Srin
6. (a) In-service education programme (b) Three hour school in Rajasthan. : S.I.E., Rajast (Udaipur)
7. (a) Programmed learning (b) In-service Training Centres. : S.I.E., Mahara (Poona)
8. In-service education and research. : S.I.E., Harya (Gurgoan)

9. Group-centres and experiment in ungraded organization. : S.I.E., Gujarat

10. Correspondence course for secondary school teachers. : S.I.E., Delhi

11. Representatives of other states discussed the programmes of their State Institutes.

Resource Personnel

The resource persons were drawn from the various Departments of the N.I.E. The list of the resource persons is given in Appendix 'D'.

Participants

The participants ~~were~~ mainly drawn from the State Institutes of Education. There were 25 participants for the first programme. All the states except Uttar Pradesh, Madhya Pradesh and Andhra Pradesh were represented. The second programme was attended by seven participants representing the State Institutes of Education, Chandigarh, Delhi, Mahrashtra and Rajasthan. Number of participants could not attend the programme because of their assignment in the elections in the country during the period of the programme. Eight persons from the various Departments of N.I.E. participated in the second programme. The third and the final programme was attended by 25 participants representing all the State Institutes of Education except Andhra Pradesh, Haryana and Orissa (List of participants is given in Appendices E(i), E(ii) & E(iii).

Concluding Sessions and Recommendations

At the end of each programme Dr. R.H. Dave, Directo of the seminar-cum-training programme, met the participa to get their reactions about the programme as a whole. He pointed out that these are core courses for any person or institution who wanted to work out such courses. He explained further that these programmes could not be implemented or launched upon but the individuals might think on these lines in one or two areas of their interest and work on it. The aim was not to take anybody to a level of expertise. But the courses gave certain hints about new dimensions in the field of education. These new dimensions might be taken up into different courses and programmes.

He suggested that a similar course may be conducted for the Directors/Principals of the State Institutes of Education. He further pointed out that these type of courses would also help in strengthening the relationship between the S.I.E's and the N.I.E. The S.I.E's would also know about the working of the Department of Teacher Education.

He pointed out that a number of things attempted in the N.I.E. were at an experimental stage. These, therefore, could not be implemented in the states without proper screening. Besides this, their practicability and financial implications also have to be assessed.

He suggested that the State Institutes should have a section on the publications of NCERT.

He commented on the major areas of the course and expressed that major research projects and developmental projects might also be included in such courses as and when organized in future.

Dr. Dave suggested that an Internship Programme might be organised for the S.I.E. personnel by the N.I.E. if any S.I.E. deputes an individual to work on a particular programme. This might be termed a programme of internship and the duration of the internship period would depend on the nature of the work.

He concluded by thanking the Directors/Principals of the S.I.E's who deputed their staff members for these programmes. He also expressed his thanks to the participants who could spare their time and attended these programmes. He expressed his sincere gratitude to the Heads and staff members of the various N.I.E. Departments who inspite of being so busy could spare their time to discuss various topics with the participan

While expressing the view that the programme was useful, the participants gave the following suggestions:

1. That the programmes should be of a shorter duration.
2. That the Report of the seminar-cum-training programm would be prepared and sent to the participants.
3. That similar programmes should be organised by the State Institute of Education in their states.
4. That more visits to educational institutions would be organised.
5. That facilities for recreation should be provided in the N.I.E. hostel.

APPENDIX -A

Seminar-cum-Training Programmes for S.I.E. Personnel.

Venue: N.I.E. Campus, Sri Aurobindo Marg,
New Delhi-16.

Objectives:-

i) To discuss new ideas and innovations in the field of curriculum, instructional material and methods, evaluation, teaching aids and other significant issues from the point of view of primary education and teacher education.

ii) To discuss implication of these ideas and innovations to the programmes of teacher education and the S.I.E.'s.

Topics for discussion

I. Curriculum and Instructional Material

- Status of existing curriculum in the states.

Problems of the existing curriculum, innovations tried out to solve these problems at the primary school stage. (The representatives of the S.I.E's will talk about their respective states)

Role of Teacher Training Institutions in the innovations being tried out in the states.

New trends in Curriculum construction.

Place of text books and other instructional material.

Use of Teachers' Guides/Handbooks.

Supplementary reading material at the primary

Grade placement of supplementary books.

Development in educational technology.

II. Teaching of Social Studies

New trends in the teaching of social studies the primary stage and its relationship with teacher education curriculum.

Introduction to the Social Studies materials developed by N.C.E.R.T.

III. Language Teaching

Reading Readiness Programme of the N.C.E.R.T. (Reading Readiness Kit and other material)

Language laboratory - visit, and demonstrati a lesson.

IV. Teaching of Mathematics and Science

Current Trends in Science Education at the primary stage.

Programme developed at the N.C.E.R.T. for th improvement of science education at the pri level.

Facilities required for science teaching. (Laboratory, study room, furniture, storage, aids equipment etc.)

Role of kits in science teaching. Role of S.I.E's in the UNICEF assisted Pilot Project.

New mathematics programme developed in the NCERT.

Preparation of teachers for these subjects.

V. Educational Psychology

Concept of development, Development during primary school stage with particular reference to cognitive and social development.

Contribution of Piaget and Bruner for understanding the cognitive development of the child and its implication for primary school education.

Psychology of learning. Its contribution to different kinds of learning.

Guidance at the primary stage.

Role of groups in teaching learning processes.

Sociometry as a technique for understanding class dynamics.

Some group methods of improving social, emotional climate of the classroom.

VI. Teaching Aids

Process of micro-teaching-programmed instruction. Satellite Communication Programme and its implications for compulsory primary education.

VII. Evaluation

Comprehensive programme of evaluation at the primary stage, keeping in view the special proble arising out of single teacher school, multiple classes, ungraded classes etc.

Tools and Techniques of Evaluation:-

Unit tests, observation techniques, rating scales diagnostic tests and remedial procedures etc.

VIII. Education for National Integration

How social learning takes place, what are the attitudes and values to be developed through the National Integration Programme.

Role of Teacher Training Institutions.

IX. Population Education

Place of population education at the primary sta Its implications for school children and teacher

X. Work Experience

Its role and importance for primary school children and Teacher Training Institutions.

XI. Other Significant Issues in Primary Education

Ungraded classes - Basic concept, organisation of such classes.

Condensed courses at the primary stage.

Shift system in Kerala (Representative from S.I.E. Kerala).

Three hour school in Rajasthan (Representative from S.I.E. Rajasthan).

Open school system.

Integrated approach to primary curriculum.

State Boards of Teacher Education and State Councils of Educational Research and Training, their function and their impact in the field of primary education.

Inservice Education Programme in the USSR, new approaches in Teacher Education Curriculum in the USSR, practical aspects of the programme which are considered to be of utility in Indian conditions will be highlighted.

THE OPEN SCHOOL

S.V.C. Aiya

1. Introduction

With the invention of printing, a mass medium was supposed to have become available. Since then, technological advances have furnished a variety of media, viz., radio, TV, films etc. In addition, programmed learning has now made it possible to systematize and simplify instruction without the aid of a teacher.

With the availability of new media, there has been in the world a very strong tendency to utilize the same for educational purposes. Thus, several decades back, the availability of radio or sound broadcasting was looked upon as a boon to education. A few decades back, several people started talking in glowing terms of the possibilities of the use of TV for educational purposes. Unfortunately, experience has shown that the use of such media for educational purposes has not been as successful as it was visualized to be. There has been a measure of frustration among those responsible for educational radio and TV and among the teachers. One of the principal reasons for this is the fact that administration for radio and TV is something distinct and separate from the administration for education. The two do not interact sufficiently frequently to evolve something meaningful. The second reason is the fact that teachers and teacher associations have not been utilized to the degree required. Further, the students or the children for whom these programmes are meant are not always kept in view. In particular, there is not much synchronization between the stage or period of the year when children require some lessons and the putting out of corresponding lessons. This agony has been aggravated by lack of proper previously published instructional material, programmes etc. The teachers have not been trained to make use of radio broadcast or T.V. lessons.

In this way, it is possible to account for frustration wherever it exists. It is useful to add that when these drawbacks have been realised and overcome, there has been some measure of success in the use of radio and T.V.

Current thinking envisages the multi-media approach to the teaching learning process and recognizes the importance of a good teacher. Thus, good classroom teaching could be supplemented by good textbooks, radio and TV lessons etc. This is an ideal approach for the utilization of mass media in situations in which the facilities of proper schools already exist and the problem to be solved is one of supplementing the instruction by the teachers in schools.

This paper is not concerned with any of the above problems on which there is already adequate literature. Its prupose is to analyse a peculiar situation as it exists in our Country and, perhaps, in many other developing countries. It attempts to provide a possible solution to an otherwise insoluble problem. This problem is one of making available to all citizens the benefits of what is called primary education. Even for this purpose, within limits, radio and TV have been used in certain parts of the world with some success. However, in the cases mentioned, the tackling of the problem has been for meeting the needs partially. Further, there has not been the problem of dealing with a multitude of languages in such cases. The attempts made could not utilize programmed learning techniques as they had not developed by then.

In what follows, a detailed description is given of the situation in our Country and the possible solutions indicated.

2. Our Problem

Elementary/primary education has to be free and compulsory for all till the age of 14. This is a directive principle of the Constitution. To realize the same through the establishment of a network of schools manned by a suitable number of trained teachers is a practical impossibility in the foreseeable future. Firstly, most of our States are already spending a measurable proportion of their revenues on education. This is likely to increase as the rise in expenditure on this account due to the salary scales provided etc., may well exceed the normal growth rate in the revenues of the State. Even with such an increase, all that can be done is to maintain the existing provision for primary education. The existing provision does not cover the / entire population in the age group 6-14. The percentage covered varies from State to State. Even within the same State, the facilities furnished vary from area to area.

If one were to theoretically calculate on ideal schools for all our villages for primary education, one will be forced to conclude that practically all the revenues of the State will have to be diverted to primary education leaving nothing for other activities!

Even with the provisions made, there are disturbing features. Firstly out of every 100 students admitted to the first year of a primary school, a large number drops out with the result that those who complete even 5 years of primary education is only a small proportion of those who join schools. This problem is generally referred to as wastage and stagnation. It has to be pointed out thatthe wastage and stagnation we think of is a man- made calamity. Firstly, we do get a large number of children who are first generation learners. That is, their parents and their grand parents were illiterate. To bring this type of children into a standardized pattern of education requires a different approach from the conventional one. Probably, a certain measure of initial training through ∠be pre-school education could∠one of the remedies. This could be supplemented by providing opportunities for repeating the lesson so that the child can pick up things leisurely.

A second drawback of our system leading to wastage and stagnation is the fact that we do not build our educational system into the economic framework of a village. In the villages, the paretns would like to draw away their children from school and utilize their services in their economic activities. Thus, during the harvesting season, very few children may probably be allowed to go to school. A probable remedy lies in changing the months of the year during which the school works.

There are other disturbing factors also. Sometimes, it is inconvenient to send children to school at the hours prescribed by the authorities.

There are in every country a certain percentage of students who may be called slow learners. For these, special attention will have to be paid for instruction.

All the above problems cannot possibly be dealt with by a school as we have fashioned. Quite often, such a school has only one teacher who handles a large number of classes. Further, he is not always the best type of teacher one can find. Added to this, we have not provided any mechanism for the continued growth of such a teacher.

3. Possible Solutions

In this situation, it is obvious that we should now explore alternative means of solving the problem. In this exploration, the first problem that presents itself is a critical examination of the organisation of teaching and examinations in the primary schools and a proper defining of the objectives of primary education. When we think of providing primary education, our principal objective is to discipline the mind of the child and equip it with such knowledge, information and methods of behaviour which would make it take its rightful place as an enlightened citizen of a socialistic democracy. For this purpose, it is not at all necessary to mechanically define a variety of subjects, courses etc., conduct examinations at the end of each year and pass or fail students. A proper assessment of a student for purposes of admission to the secondary school or for employment may be necessary at the end of the primary stage. But, a mechanical audit of a child's achievements in each subject at the end of each year or more frequently is something which is neither necessary nor psychologically desirable. It follows therefore that the first step on rethinking should lead to eliminating monthly, half-yearly and yearly examinations in the primary schools. There could be some indirect forms of assessment which may assist the teacher to grade or rank students in a certain order but the concept of declaring a student fail must be given up at this stage.

Having defined objectives of primary education, we have to think not interms of subjects or items but in an integrated way. This leads to a situation where we avaoid mechanical division or itemising of whatever the child has to study at the primary stage. This should get replaced really by an integrated approach of an overall content of primary education. This overall content could be covered by a child over a period of years. A minimum and a maximum for the same could be fixed. We could think of some assessment at the end of primary education for purposes of admission to secondary schools etc. and only those who desire to take such a test may be allowed to take the same. For all others, an overall assessment of what the child has acquired through schooling by direct and indirect interviews etc. should be adequate. Such an approach might look revolutionary to the conventional mind soaked in age-old traditions. But, this is nothing abnormal in terms of the thinking of modern youth. Many young men and women in many parts of the world have already started questioning the present system of schooling and comparing the same with religious institutions like the Church etc. Many of them feel that, at all stages, they have a right to learn what they like and the State should provide the required opportunities for their learning and growth. But, they feel too rigidly defining subjects and standards of passing is something incorrect. The reason for their thinking this way is the fact that they question the very competence of the adjudicator who declares them pass or fail and who decides that this or that subject is important etc.

While we realise that there can be no possible substitute for a good teacher, we must appreciate that it is impossible to get good teachers for primary schools under the terms and conditions that we ofer or can possibly offer. Further, the quality of teachers would vary from school to school in an extremely significant way. Under the circumstances, even when teachers are available, some form of programmed instruction could be extremely useful as it will provide the much needed uniformity in exposition. For this purpose, it may be possible to pick up a limited number of really good teachers and make them write lessons. Such lessons could be translated in the different languages of the Country and recorded.

In the organisation of primary education, after taking an integrated view of the overall content, considerable effort will have to be put in to divide this overall content into a large number of independent units. For each unit, there could be a set of lessons. It should be open to the child to cover a certain number of these units and not all of them. It should also be open to the child to decide the best sequence in which it would learn the different units. In fact, it may learn all of them in the minimum time and more. This kind of unitized construction of the integrated primary curriculum will go a long way to eliminate the conventional concept of first, second, third year and the beaten track sequential coverage.

4. The Open School

The Open School visualizes setting up a medium frequency one KW transmitter at the centre of an area. This transmitter may be unattended. In such a case, there would be two transmitters and when one goes out of operation, another gets automatically switched on. At scheduled hours, programmes recorded on tape would get played through this transmitter. Thus, from 8.00 to 8.15 a.m. there could be beginners' lessons on some topic. From 8.20 to 8.35 a.m., there could be another lesson for some-one who has learnt something and so on.

Incidently, in our Country, man made noise is negligible in rural areas. Atmospheric noise does not exist in the morning hours and in the afternoon hours till late afternoon. Therefore, a field strength of about 100 microvolts per meter may be adequate for a clear reception. In such a case, a one KW transmitter can be expected to cover all villages lying within an area of 2,000-5,000 square miles. There will be slight variations in this area within the range stated depending on terrain and the frequency chosen.

The children who listen to the programmes are to be provided individually with a spot frequency tuned receiver of the transistorized type. If a group of children are to listen to such a programme, the receiver will be of the same type but its sound output will be higher. Either way, with the elimination of tuning and other controls, the receiver could be extremely cheap. When produced on a mass scale, it is estimated that such receivers should be available at very much less than Rs. 50/- each. In addition to such listening, the children will have to be provided where they need, nicely illustrated books. Such books are expected to become a substitute for the vision part of TV.

With programmed instruction and the books, a child can learn for itself when it is supervised by any educated person. Thus, even when it is raining very heavily in some parts of India, a child can have its lessons at home. Similarly, when it is extremely cold in certain parts of India like Kashmir, children can have their lessons at home if they so choose. This can become a boon for girls.

The programmes described above can be utilized for instruction in our existing single teacher schools also.

The Open School vizualizes the incorporation in preparing instructional material, of solutions for all problems indicated in the previous section. It may be added that test questions could also be asked through the raio to enable children to answer them.

With the development of the Open School, it may be possible to develop suitable lessons for first generation learners and put them out through the Open School as pre-school instruction. Similarly, suitable repeat lessons could also be put out to assist slow learners.

Sometime of the Open School can and should be utilized for in-service teacher education. Wherever there are single teacher schools or wherever some qualified individual like a retired official or a married woman wants to improve teaching, he or she could have some ducation. Thus, it is a pre-requisite for the success of an Open School that it must also programme suitable continued instruction for the in-service education of teachers.

5. Estimated Cost

We have large areas in the Country with no schools. Some of the tribal belts probably belong to this category. In such areas, it is difficult to put up buildings or make teachers go and work. In all such cases, the Open School furnishes the best answer.

When detailed calculations are made of the uses of Open School as described above, it will be discovered that the cost of an Open School would work out a little cheaper than the conventional school. Further, the Open School lessons can be utilized even by adults. The only limitation of the Open School lies in the development of writing. For this, supplementing the instruction through the Open School by some kind of a supervisor will probably be necessary. The printed book cannot assist a child as satisfactorily. However, when TV becomes available, this defect can be partially removed.

6. Conclusion

The preparation of lessons, unitizing them, and getting them put out properly for being recorded on tape is the major problem of the Open School. Once this is solved, the broadcasting of the lessons and the printing of the required books etc. become easy. Thereafter, there could be a pilot project in a chosen area. A proper evaluation of the results should be carried out and utilized to improve the project. This way, it is felt, the Open School could get started on a firm foundation.

DEVELOPMENTS
IN
EDUCATIONAL TECHNOLOGY

R.H. Dave

The term Educational Technology is relatively new in the educational parlance. Apparently, the origin of the term is connected with the recent technological advancements.

2. Technology, by definition, is the practical art based on systematic and scientific knowledge. It may be based on any systematic field of study such as physical sciences or behavioural sciences or a combination of their branches. The concept of Educational Technology can also be evolved on the basis of the same rationale. Educational Technology can be defined as the practical art of education based on physical, social and other sciences. Thus Educational Technology includes the practice of education developed on the basis of relevant sciences. It is also based on certain technological innovations connected with the development of a variety of materials, instruments and means of communication.

3. There has been a controversy for a long time over a classical question as to whether education is an art or science. In order to resolve this question, it is necessary to have a comprehensive view of the entire field of education. When the practice of education in the form of Educational Technology is considered, education is conceived as practical art. However, Educational Technology itself is dependant on various sciences from which ideas, concepts and materials are drawn. These sciences may, therefore, be conceived as educational sciences. We are familiar with the terms like, educational psychology, educational sociology and educational philosophy. These soft sciences have provided basic concepts and theories in education. These are therefore educational sciences. Similarly basic theories and concepts are drawn from the fields of physiology, biology, physics and so forth. They also, therefore, constitute parts of educational science. Thus the science of education is composed of a number of concepts, relationships, principles and theories drawn from the physical and behavioural sciences like the ones mentioned above.

4. To summarize, Educational Technology is developed on the basis of the science of education. It is also developed on the basis of a variety of technological innovations such as printing technology, photography, means of communication, etc.

5. We have considered Educational Science and Educational Technology as two important facets of the field of education. In order to consider the place of Educational Technology in the total field of education, it is also necessary to take into account the third important facet of the field which may be termed as educational management. This may include planning, administration and finance on the one hand and the manpower supply system on the other. Thus, Educational Technology is one of the three important facets of education, the other two being the science of education and educational management.

6. Educational Technology, in its wider concept, is as old as the formal system of education itself. Earlier this included all instructional procedures, tools and materials of pre-technological era utilized to produce learning through a planned system of education. However, many new developments have taken place during the recent

times. The first major development came about as a result of the invention of the printing press. It brought about a major advancement in Educational Technology. Since the beginning of the present century, many more developments have taken place in the tools, aids and media of instruction. New equipments like films, language laboratories, radio, television, video tape recorders and computers have been put to use in education. Programmed instruction is another important development. Educational practice involving these materials and media may be described as New Educational Technology (NET). These developments are the outcomes of advancements in mechanics, electricity, electronics, plactics, photography, chemical technology and allied areas, besides those in the soft sciences.

7. The new developments in Educational Technology have influenced the operational aspects of education considerably. At the same time when one compares the impact of science and technology on education with similar impact in other fields of human endeavour, one finds that the impact in the field of education is rather meagre. This is true for developed as well as developing countries. The impact of technology in fields like transport, communication, textile, mining, agriculture and medicine is simply stupendous. It appears that

in course of time the impact of science and technology in the field of education will increase substantially.

8. An overview of historical development of Educational Technology indicates that in earlier times the 'Man', that is the teacher, was chiefly responsible for practically the whole of the operational aspect of education. Later on, especially after the invention of the printing press, a variety of 'Materials' came into use on a mass scale to assist the Man in educational operations. In the recent times, in addition to the Man and Materials, the use of 'Machines' is being made. Thus Educational Technology has gone through a sequence of transformation which can be summarised in terms of three models of educational practice. The first may be called the Single-M model where the Man was the chief agent of the educational operation. The second phase may be described as the Double-M model where the Man and also the Materials were the chief agents in control of the practical art of education. The third and the latest phase may similarly be named as the Triple-M model where the Man, Materials and also the

Machines are the agents of educational pracrice*. This is indeed a very gross and simplified view of historical development of educational technology. All the same, it indicates briefly and concisely the major shifts and developmental trends in this field. It may be observed that there are a large number of countries in the world whose educational institutions function according to the Double-M model of Educational Technology. Those operating according to the Single-M model are also not rare. On the other hand, the countries which have been able to enter the Triple-M model of educational practice are very few in number. And in these countries also there may be some institutions which may not have fully transformed their Educational Technology according to the Triple-M model.

9. There are three types of interactions produced in the school situation for generating desired learning. One type constitutes the interactions ($\rightleftharpoons$) between a given learner (L_1) and a number of teachers (T_m) with whom he comes in contract ($L_1 \rightleftharpoons T_m$). The

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*There is a fourth important term in this sequence again starting from M incidentally. That is the Media. But it should be noted that Media are subsumed under the terms Man, Materials and Machines.

second type includes the interactions between the learner with other learners (L_n) in the class and in the school ($L_1 \rightleftharpoons L_n$). The third type constitutes the interactions between the learner and a variety of materials (M_p) such as textbooks, maps, charts, a variety of audio-visual aids and so forth ($L_1 \rightleftharpoons M_p$). These three types of interactions produce educational environment in the school. Educational Technology is directly responsible for producing a variety of interactions between the learners and materials ($L_1 \rightleftharpoons M_p$) with the help of different media, aids and tools of learning. In addition, Educational Technology plays a very important role in producing other two types of interactions as well. As a matter of fact the kind and quality of Educational Technology brought into operation in the process of learning determines the kind and quality of interactions generated in the school environment. This, in turn, controls and conditions the kind and quality of student's learning. Thus the teaching-learning strategy is largely dependant on Educational Technology.

10. The New Educational Technology involves both the hardware as well as the software. The materials like

programmed instruction, textbooks and the notes based on the films and filmstrips constitute the software of Educational Technology, whereas tools like television, film projector and tape recorder constitute the hardware of the New Educational Technology.

11. When we refer to the hardware and software of Educational Technology, we take into account the instructional materials and tools. But there is a third important aspect of Educational Technology which is invisible, subtle and rather intangible. This is the technique of utilizing instructional materials and aids in generating proper learning opportunities and sequences. Techniques are built into the instructional materials and tools to a certain extent. However, the teacher can employ suitable methods of establishing communication with the learner to ensure maximum possible learning on the part of the student. Moveover, the techniques take care of the media of communication as well. It may be noticed that the concepts of techniques, tools, materials and media that constitute Educational Technology are closely connected and interlocked with one another in many ways.

12. The New Educational Technology helps a great deal in bringing about a resurgence in education. It provides opportunities for strengthening group learning techniques, for adopting new learning procedures conveniently, and also for practising accelerated and enrichment learning programmes. It takes care of individual differences among pupils, as also individual differences among teachers. In fact, the role of the teacher is changed very substantially when New Educational Technology is adopted. The teacher becomes a coordinator of various materials and tools, and becomes responsible to manage various means of generating suitable educational environments. Furthermore, it is possible to produce more intensive learning without much variation in standard from class to class or institution to institution. The teacher variable can be controlled very satisfactorily by adopting the use of New Educational Technology. Certain other problems of mass education, frequent inservice education and the like can also be tackled more effectively. To sum up, the New Educational Technology has immense potentialities to acquire better human

control on the educational endeavour that is aimed at better human development. At the same time one should not expect magical influence of these new developments and should not raise undue expectations.

13. The programme of incorporating the New Educational Technology in our system is likely to be somewhat costly in the beginning. There will also be a good deal of resistance from various quarters. It will be necessary to employ some new categories of personnel like mechanical engineers, operators and repairers in the educational system. And certainly the role of the teacher and the administrator will have to be drastically changed. As against these and many other difficulties, it appears that the Educational returns are going to be very substantial.

14. Even a casual observation of our educational institutions will bring out a hard reality that at present our education system is in a pre-technological era in many respects. This is true of many countries

in the world. It is high time that we begin to adopt New Educational Technology and thus enable our system of education to enter the technological era before education becomes too much out of tune with other major endeavours of our society.

POPULATION EDUCATION

R.K. Bhan

After attaining independence, India started a programme on social and economic planning which included expansion of education especially at the lower levels. Science, technology, industry and agriculture have no doubt increased but in terms of human and social welfare the results have not been commensurate with the needs of the country in different directions. Since the independence, the economy has grown at a cumulative rate of 3.8% as compared to less than 1% before independence. Industrial production has gone up by 150% and food production by 62%. There has been expansion in education and health facilities all-round, but per capita food consumption has gone down from 12.8 Ounces to 12.4 Ounces despite the increase in food output by 21 million tons. While the national income has increased by 64% within the three plan periods, per capita income has increased by 21%. These figures give food for hard thinking. It is not difficult to find out the reason for these disparities. The population is now growing at the rate of 2.5% i.e. an annual addition of 13 million which is equal to the population of Australia. While the birth rate has shown a decrease of 2.3%, the death rate has gone down by more than 8% creating a widening gap between the two. India has a total of 2.4% of the area of the whole world, while out of the total world population it has 14%. It is the second most populated country of the world. It however enjoys only 1.5% of the World's income. The IVth Five Year Plan states:

> "Per capita income in 1965-66 was about the same as it was in 1960-61, the results of the meagre growth rate of national income having been almost completely neutralised by the 2.5% rate of growth of population".

This clearly poses a challenge to the economic and social planners in India. The answer lies in decreasing the rate of increase in population through all measures, otherwise economic and social development plans will be diluted. It has been estimated that for meeting the annual increase of 13 million population there will be a requirement of 12 million Quintals of food grains, 188 million metres of cloth, 2 million houses, 126 thousand schools, 372 thousand school teachers and 4 million new jobs. In this huge task the administrator, the social worker and the educationist have to pull their wight together to bring about an impact on the deteriorating situation.

Family planning has no doubt been advocated very broadly both as a long and short term programme. Education is however a basic factor in motivating the people to take it up. There are about 100 million eligible couples of reproductive age in the country, out of whom about 15% have been effectively reached by family planning programmes. While a small number of these adults pass over to the older - non-reproductable age group, there is a constant stream of youngesters flowing into the reproductive stage, thus swelling their number further. It is therefore essential to develop among the young children an understanding of the impact of pupulation growth on the national development, social and economic, both in the short and long run and its impact on the individual and the family. This is the crux of Population Education. It is therefore obvious that population education should be one of the most potent programmes to be launched forth as an integral part of family planning programmes and this should be brought about by close coordination between the activities of the departments of Health and Education.

The concept of Population Education, however needs to be spelt out. Does it exclude sex or family education? Does it mean dissemination of information to the masses at large regarding growth of numbers vis-a-vis, the resources of the country, indicating indirectly the need for family planning? This will envisage a comprehensive programme of social education and other mass communication devices already introduced by the family planning departments. Population education should however indicate a more objective programme of school and university education to bring home to the students that the growth of population and economic development are closely related.

If it is accepted that population education for schools is a necessity, it will be very essential to draw out curricula for various classes to be introduced either as an additional subject or a part of the existing syllabi. The curricula of the various classes in the schools have however become over burdened and the experts are of the opinion that further additions to the same will not work in the interest of the students. Besides, if this subject is introduced as an additional one, the extra expenditure involved in providing for separate teachers in this subject has also to be borne in mind. The country can ill afford this expenditure and can be easily avoided. It is therefore, a matter of consideration for the educationists to resolve this complication. On the one hand the content of population education has to be spelt out and spread over different school and class levels and at the same time an attempt has to be made to induct these concepts in to the already existing subjects, viz, Languages, Civics, Economics, Hygiene etc.

There is some controversy among educationists regarding the actual content of population education imparted in educational institutions. Should population education merely give information as indicated above on population dynamics, birth rate, death rate, average span of life as also supply of food and shelter, clothing and essential services available for the increased population or should sex education, in some form or the other also be introduced at any stage of the school career. I feel strongly that population education without involvement of sex should be imparted to begin with in all stages of school education. The content of the syllabus will vary from class to class and students' mind should be gradually motivated to accept the need for adoption of family planning by the time he or she leaves the school. It may be conceded that at the advanced stages of education the biological functions of human being and the introduction of the family planning would be useful. It is however to be borne in mind that the compeign of population education is to be carried into the innermost parts of the country, especially rural areas, where the people are not prepared to respond to modern ideas though the need for family planning is the greatest there. The educationists have therefore to set about the task with caution and introduce progressively these new concepts in the educational content in a very appropriate manner throughout the country. Actual teaching of Sex education should be left out over to the teachers. For that very reason, it is very essential that the teachers should be properly trained in the methods of teaching population education and teacher training colleges should be adequately provided with facilities in this respect. There should be a provision for teaching methods of population education just as there is one for the method of teaching other different subjects such as, Science, Social Studies, Languages etc. Teachers in service should be given orientation courses in the method of population education especially in rural areas. Thus teachers' education in population problems should receive a high priority. It should not be forgotten that the teacher holds the key for the successful implementation of the plan.

It is already agreed that teaching should be introduced through different stages but before that is done core concepts must be defined and, what is more important, reading materials in the form of books, charts, slides, films and other materials should be prepared and sorted out to suit different levels of studies. Besides, extra-curricular activities in the form of extension leactures, dramatics film shows etc., may also be projected in propogating population education in the schools.

The Pathfinder Fund, New Delhi have prepared a curriculum on Population Education, covering the following areas:

1. Over Population
2. Health and Population
3. Family Size
4. Equality of Sex
5. Standard of Living.

The Ministry of Health through its Bureau of Central Health Education ∠also held a Workshop on Population Education in which the following main topics were outlined for school education:

1. Dimensions and magnitude of the Population Problem.
2. Relationship between natural resources and basic needs of population growth.
3. Relationship between gross natural product and per capita income on the overall context of the rapid population growth.
4. Family Life Education.

The Workshop conducted by the Bureau of Health Education also discussed contents of the elementary school education which are given below. Since this gathering is interested in population education

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∠with which I was closely associated

for the elementary schools, these facets of population education programme for the elementary may be of relevance to them.

Contents of the Elementary School Education

1. To develop awareness of the problem of growth and decrease of population and its impact on

    a) home
    b) local community
    c) State
    d) nation
    e) World.

2. Understand the role of small size families in promoting national welfare and his welfare and the welfare of his family in the context of rural and urban environmental conditions.

3. Understand the value of healthy life.

4. Develop habits of healthy and hygienic living.

5. Understand the importance of food and nutrition for maintaining the quality of population.

6. Have elementary knowledge regarding plant, animal and human reproductive physiology and psychological changes that are related to physical growth and physiological changes.

7. Understand the importance of happy family living.

Contents related to the above general objectives should be integrated in the relevant school subjects.

It cannot be denied that to begin with, the population education programme should be introduced in the top classes because the students reading in these will be soon going into the reproductive age group and the immediate impact on their minds about the importance of population planning both as an individual and as a national measure is necessary. But in the long run the programmes of education have to begin through elementary classes.

Each of these schemes covers the main contents of the new educational program. These facets of population education are to be included in either one or the other form in the population education syllabus for school programmes. In addition, the teacher training colleges have also to set about with the task of introducing their own programmes of methodology of teaching population education in their institutions.

This paper was discussed in the first Seminar-cum-Training Programme.

PLACE OF TEXTBOOKS AND OTHER INSTRUCTIONAL MATERIALS IN SCHOOL CURRICULUM

Adarsh Khanna

The textbook has occupied a central place in the school curriculum from time immemorial. Much has been said about the educative value of direct experience with things. At times there has been a cry against the central place usually given to textbook. But direct experience does not cover the ground. It is unthinkable how each child can be helped to learn the history or geography of his country or other countries. Direct experience with things can go only a part of the way towards the total learnings expected through school education.

The textbook plays a variety of important roles in the school. It is all the time available to the students for consultation, reading, revision etc. besides it is an important tool in the hands of the teachers for planning th day to day teaching in the class room. The textbook also plays a very important role in interpreting new ideas and concepts for the schools. As soon as a curriculum outline or a syllabus is revised it is through a textbook that the new outline is interpreted for the use of the children and the teachers.

Even though a textbook occupies a centrally important place in the school curriculum, it has its limitations as the only guide to learning. As the scope of curriculum has been widening, the limitation of the textbook as the only aid to learning is becoming more and more evident. In recent years a variety of instructional materials have been used to supplement the textbook. These instructional materials include teachers' guides, students' work-books, teaching units, supplementary reading material, films, motion pictures, tapes, radio, television, language laboratories, programmed materials and the like. The selection and use of such materials depends upon the local resources and conditions of an individual school. As many of such or other improvised instructional materials could be used depending upon the objectives and the resources of a school. It is necessary to emphasise here that use of instructional materials irrespective of the objectives they feed into, is not relevant. The curriculum workers have got to constantly evaluate the effectiveness of their curriculum and adopt the most suitable methods and materials for increasing the effectiveness of the curriculum.

Certain minimum materials must be made available to each school. Some other instructional materials can be shared by a group of schools. For this purpose a number of centres of instructional materials may be established in the extension centres. The instructional materials' centre has got to develop the services for loaning out the instructional materials to the schools by rotation according to their needs. Besides, groups of teachers from different schools may be invited to visit the centre.

In the context of the conditions prevailing in our country, extension library can play a very important role Each extension library can have a small unit consisting of two or more very good teachers. They should be responsible for preparing or collecting information on topics of interest to the schools. These topics may include the topics prescribed in the syllabus as well as new developments like 'the man landing on the moon'. The package relating to a topic may include the write ups as well as the relevant pictures or illustrations. Thus this unit can gradually develop a library of package material on different topics. The schools served by the Extension Library may be informed about the availability of such a service. As soon as a school sends a request for the supply of information relating to a certain topic, the relevant package may be mailed to the school for a fixed period of time. It should be obligatory on the part of the schools served by this scheme to return the materials in time so that the materials may be loaned to other needy schools by rotation. Needless to say that the staff of the unit should be constantly working for making the package material up-to-date all the time.

SOME RECENT TRENDS IN CURRICULUM DEVELOPMENT

Adarsh Khanna

School curriculum denotes the total plan of a school devised to achieve the educational goals. Common curriculum outlines, the syllabus or the curriculum guides can be provided for schools in a certain area or locality. The curriculum guides help in the process of curriculum development in the individual schools. However, common experience reveals that adoption of a common syllabus or a curriculum outline does not guarantee the same quality of curriculum development in each school. Curriculum connotes the total activity of a school in certain type of climate which permeates the entire atmosphere of the school. Thus curriculum is not merely the physical sum total of the various activities and programmes organised by a school. It is the various programmes organised in a suitable emotional climate which help to produce an effective curriculum. The quality of the school climate is to some extent, governed by the mutual relationships among members of the staff, between the staff and the students and among the students themselves. The difference in the climate makes a very substantial difference in the actual learnings acquired by the children in two different schools.

Curriculum dervies its direction from the objectives or educational goals accepted by a school system. Educational psychologists have become convinced on the basis of experience and research findings that if educators could define the goals of the schools clearly in terms of observable behaviour, psychologists could construct instruments to measure and perhaps to evaluate them.

In recent years the technological advancements and the pace at which knowledge is expanding, have made it obligatory for the educationists all over the world to have a second look at the educational goals themselves. The emphasis is shifting from the acquisition of knowledge to the process of acquiring knowledge. Carl Rogers has put it as follows:- "We are faced with an entirely new situation in education where the goal of education if we are to survive, is the facilitation of change and learning". The only man who is educated is the man who has learned how to learn; the man who has learned how to adapt to change; the man who has realised that no knowledge is secure but only the process of seeking knowledge gives the basis for security.

As stated earlier curriculum is much broader than any written outline. One important element of school curriculum is the teaching of content relating to different subject areas. The content has been organised in different ways. These can be classified broadly as (i) separate subjects (ii) correlated subjects (iii) broad subject fields (iv) activity curriculum and (v) core curriculum. Studies have revealed advantages as well as disadvantages of these approaches. It is difficult to establish absolute superiority of one over the other. The trend is towards a combination of more than one approach rather than rigid adherence to any one approach.

In some schools the textbook is the course of study and hence the scope of curriculum is limited. In others the scope is much broader through the availability of libraries, films, museums, field trips, facilities, laboratory equipment tools, television, radio and programmed instruction. The introduction of television has been found to be helpful in improving pupils' achievement, curriculum enrichment, accelerating teachers' professional growth and offerning greater equality of opportunity to all children. Language laboratories have been found to be very effective as an aid to acquiring accuracy of pronunciation and also in learning foreign languages. Films and motion pictures because of their multi sensory impact on the child help in the acquisition and enforcement of learnings.

The sequence of learning has been a very ticklish problem facing the curriculum workers. Studies reveal that the concept of sequence cannot be applied to any subject matter without reference ~~be applied to any subject matter without reference~~ to the learner. Children differ in abili and experience. A child's experience provides a continuum and no planned educational experience can be precisely located at the same place and time in more than one child's development. Two children will react entirely differently to the same situation, be it rewarding or unsatisfactory. Thus individualisation of instruction to the needs and capacities of each learner becomes absolutely essential. At the elementary stage ungraded rooms have become a popular practice specially for the age-group 5 to 8.

The studies also indicate positively that students learn more from each other than from teachers. Hence lot of experimentation has been done in the grouping of children for various purposes. On the basis of ability it is realised that the children will exhibit a wide range of individual differences. Grouping according to social maturity has also been tried with some advantage.

It was emphasized in the beginning that the climate of the school is a very important factor in effective curriculum development. The congenial climate free from inhibitions or tensions; democratic relations between the staff and the students, among members of the staff and among the students; and an atmosphere of trust or give or take help to a large extent in creating the desirable climate in the school. Besides, the policies of punishment and reward adopted in the school also contribute to the total climate. The studies reveal that the behaviours which receive immediate reward and reinforcement in the mind of the learner are likely to reoccur. Threat of (low grades) and punishment (writing some extra reports etc.) have variable and uncertain effects.

The skill and the insight of teachers in recognising the individual children's ability and attitude and the adoption of suitable methods also has something to do with this element called the climate of the school. Some of the studies indicate that tasks must be within the range and ability of the learner. In addition to being within the capacity of a learner, tasks should not be too easy. Success should be possible but not automatic or impossible.

The other important elements in the effective development of curriculum are the evaluation and appraisal of the attainments of each individual child in the school and continuous evaluation of the total curriculum with a view to making further improvements.

READING READINESS

G.D. Sharma

Reading Readiness programme is designed to develop readiness for reading in children of class I.

Need for Reading Readiness

There is a need to know the children when they are admitted to class I. It is, therefore, desirable to know about their interest, their level of language development at different ages, their home background, their grasp of concepts, the difficulties they face in learning to read; for these are fundamental in acquiring the right skills, habits and attitudes for reading.

Areas of Reading Readiness

(i) Developing Concepts

One of the most important instructional jobs in any reading readiness programme is the provision of a number of experiences related to the interests of the pupil and thereby broadening his field of meaningful concepts. Printed symbols have significance for the learner to the degree that they stand for things within his experience. Meaningful concepts aid not only in interpreting symbols but also in fixing the memory of printed symbols so that the words are recognised whenever these are seen again. Experience for acquiring meaningful concepts must be varied, real and important.

Training in Reading

Since 'reading is reasoning', training in the ability to do problematic thinking should be another important part of the reading readiness programme. The children should be given thought provoking questions on their own level of maturity in order to train them to think. The child should also be trained to question, to compare and relate his past experiences to select relevant ideas, to organise ideas, to make judgements and to draw conclusions.

Developing Language Ability

Language plays a very important role in learning. With the help of language the child is able to adapt to his environment, to think, to solve problems, and to systematize his knowledge. It is the basic equipment for social communication. It also serves an instrument, for play and phantasy and for emotional release. Hence development of language skills is one of the most important aspects of the readiness programme. Before starting to teach, the teacher should build a common vocabulary in order to help children understand the lessons they will be reading.

Training in Accurate Enunciation and Pronunciation

Training in enunciation and prononciation can be imparted most effectively through example. The teacher has to be very careful while talking to children so that immitation may promote correct habits. The teacher should help the child to carefully listen to new words with which he has difficulty, to show the child the correct position of the tongue and lips to make the desired sound, and to give opportunities for the relaxation of speech organs, lips and tongue.

Training in Visual Discrimination

To do well in reading, the child must have sufficient power of visual discrimination to readily distinguish between the forms of the printed words. ~~Exercises for the development discrimination between words~~ Exercises for developing discrimination between word forms should focus the child's attention on distinguishing the forms of printed words, parts of words and letters. The configuration of the word is usually used as a clue by the children to recognise words, so practice in distinguishing between the forms of one word and another should be given in the pre-

Developing Auditory Discrimination

The ability to discriminate - between speech sounds is a basic factor in readiness for reading. An essential part of the reading readiness programme is to train the child to develop auditory discrimination to the point where he can distinguish readily between words and sounds of parts of words. The different variations of the same sound, like क , ख and ग , घ or like प , फ through words starting with or containing these letters should be introduced by the teacher.

Developing Motor Control

Proper and appropriate handling and use of books, pen or pencil, copy etc, is one of the essential factors of reading programme. Majority of the children admitted to class I are unable to handle these things properly. They lack motor control. The teacher should train the children in drawing lines, circles, picture etc. The movement should be from left to right and upward and downward. All such activities will train the child to gain motor control and visual concentration.

Developing Interest in Learning to Read

A strong desire to learn to read facilitates the child's task in learning. Interest promotes desirable initial attitudes in the child and also stimulates him to give the concentrated attention required for success in early reading experiences. Keen interest in reading naturally develops from experiences which reveal to pupils that reading contributes to their pleasure and satisfaction. The teacher may read aloud to the class frequently good, interesting stories which stimulate the child's curiosity and desire to read and find the facts for himself. The teacher should take all the opportunities to show the value of reading for fun, for information and for finding answers to some questions.

Developing Memory Span

Training in keeping a series of ideas in mind to develop the memory span of ideas also falls within the pre-reading programme. This is useful in carrying the child through a story and in aiding him in the recognition of new words by content clues. It also aids him in forming the habit of rapid and fluent reading.

Before starting the formal teaching of reading the teacher must assess the abilities and lack of abilities of the children and provide opportunities for developing the ability they lack. The best way to ensure success in beginning reading is to develop the tools that are essential for successful reading in a well planned reading programme.

PRIMARY SCIENCE PROGRAMME

B.D. Attrey

Science is fastely changing our life. The influence of scnience on our society has been most marked during the last two decades. Because of this impact of science on society efforts are being made by all nations to achieve scientific literacy for all

Even if science is so important for adults, why should we teach it to little kids at the primary level?

(i) For achieving scientific literacy in general, in the near future, science should be made a component of primary curriculum.

(ii) The attitudes and ways of the scientist are essential for a life of health and happiness. Promotion of the development of scientific attitudes should be taken up at an early age.

(iii) Children are inquisitive, always asking questions about things around them. Most of these questions are related to science.

(iv) Science is specially suited for integration with other subjects at Primary level.

(v) Science prepares the mind for life of chages which is so common a feature of modern living.

Let us now consider how science should be taught to achieve maximum benefits of its education.

Science has two aspects: the product and the process.

The 'product' of science comprises the facts, theories, laws, concepts or even new technological developments. It is knowledge that has already been acquired.

The 'process' of science refers to the way scientists are creating new knowledge - their attitudes, modes of thought, philosophy, strategy etc.

The fabric of science is woven from a warp that is knowledge and a woof that is process. For an effective science teaching, both these aspects should be kept in view.

In the AAAS project 'Science-A process approach' 13 science processes have been recognised of which eight are basic and five integrated.

Basic processes: observing, using space-time relationsjips, using numbers, measuring, classifying, communicating, predicting, inferring.

Integrated process skills: formulating hypothesis, controlling variables, interpreting data, defining operationally, experimenting.

Elementary science projects being developed or implemented throughout the world may be classified into five categories:

1) Process approach
2) Conceptual approach
3) Unit approach
4) Environmental approach
5) Applied Science approach.

In spite of differences in approach, the common ingredient to all the projects is the strategy of helping children learn science through activities which are inquiry-oriented.

The programme of science education at primary level developed by DSE/NIE-NCERT has the following components:

A. For the teacher-educator

(i) Syllabus classes I-V

(ii) General Science-A Handbook of Activities 3 Volumes.

(iii) Science is Doing, Text books for classes III, IV, V

iv) Teacher's Guides to Science is Doing for III, IV, V.

v) Primary Science Kit along with its kit guide.

vi) A set of slides on 'Activity Learning of Processes' along with science brouchure for guidance.

vii) The film 'A new approach to Science Teaching'.

B. For the teacher.

Items (i) to (v).

C. For children.

Text books "Science is Doing".

CONTEMPORARY VIEW OF MATHEMATICS EDUCATION

G. S. B~~h~~aderia

A) Growth of mathematics

(i) Like several other subjects, mathematics grew out of the needs of the society. As the society became more and more complex, the content of mathematics grew.

Examples - Counting was the first need of a primitive society. From crude methods of counting by matchige, we have finally come to the Positional Notation today.

Addition was another need. Addition was initially performed with the help of sets of concrete objects. Later the process was abstracted and performed on numbers.

Multiplication was used as a quick device for addition of the same number a number of times. Multiplication was extensively used for grocery problems etc.

With the use of units for length, weights and measures, grew the need for numbers of arithmetic.

The concept of profit and loss gave birth to directed numbers.

As agriculture developed, shapes size and area of geometrical figures began to be studied.

(ii) As the civilization progressed and became science and technology based, newer branches of mathematics came up.

Operations research, linear programming, probability and statistics, econometrics, decision theory, Boolean algebra, information theory and several other branches have developed.

(iii) Side by side with this expansion, greater sophist cation has been brought about in the existing subject-matte

Mathematicians have today become interested in finding out which mathematical systems exhibit the fundamental algebraic structures namely groups, rings, fields and vectorspaces.

An axiomatic development has been assigned to the growth of numbers.

Polynomials and rational functions are being studied from the structure point of view.

Function concept is being used widely to describe events connecting one independent variable to a dependent variable through some rule.

In short an effort is now being made to give a structu to mathematics.

B) Factors that have forced a rethinking about school mathematics programme during the last 50 years

(i) Knowledge explosion - As indicated earlier, there has been a tremendous knowledge explosion. There are as many as 80 branches of mathematics and each branch has been growing. Today more mathematics is being created than ever existed before. This poses a serious problem as to how we can reasonably equip the student with the tools to understand present-day mathematics.

(ii) Today's civilization is becoming more and more science and technology - oriented. Today we need a citizen who is much better informed than his predecessor. He needs to understand variable, function, binary system, probability etc. We therefore need to update our school curriculum immediately to fulfil these requirements.

C) Objectives for teaching mathematics at the school stage.

The above factors force us to have a fresh look at the objectives of teaching school mathematics, to redefine them if necessary or to change the emphasis.

The following should be the objectives of school Math, programme.

(i) Concept formation e.g. development of numeration syste
why do different algorithms wor

(ii) Skills e.g. manipulation of geometric tools,
use of algorithms.

(iii) Applications - - (a) in the subject
(b) in other subjects
(c) social applications.

(iv) Revealing the nature of mathematics
    (a) Mathematics has patterns
    (b) Mathematics as a deductive system
    (c) Abstract nature of mathematics
    (d) Unifying concepts.

D) Implications for teacher preparation

Like a supervisor, a teacher must also have a superior vision of the subject, so that he can present a true perspective to his student. A training college must therefore provide in its course topics like:

(a) Recurring patterns in mathematics

(b) Symbolic logic - the language of mathematics

(c) Nature of proof

(d) Mathematical models

(e) Relations and Functions

(f) Groups, rings, fields and vector spaces

(g) Geometric transformations

ROLE OF S.I.Es IN THE UNICEF

K.J. Khurana

I. Availability of two variants - one set of materials prepared in the Department of Science Education of the NCERT and the other set prepared by the different study groups constituted by the NCERT. The former set is complete, where as some materials are still on way for the Study-Group set of materials.

Main features of the materials prepared in the Department of Science Education (Variant-1) -

1. Materials were initially developed during 1965-68 in collaboration with the teachers from the Experimental Schools keeping in mind the problems such as time allotment, class-room situation and the teaching load of a teacher. Materials were revised on the basis of feed-back from the schools.
2. It is a package programme; the text books are supported by:-
    - i) Teachers guidance materials
    - ii) Kits of equipment with brochures and other guidance materials for their use.
    - iii) Film-strips and other supporting materials under preparation.
3. Guidance is available for the Teacher Orientation course, some sets of film-slides and brochures are already available.

4. Hindi versions of all the text books and some other materials are made available.

Study of the N.C.E.R.T syllabii for adoption/adaption keeping in view the aspects like:

II. Survey of the current syllabii in the State.

1. Requirements of Science for all the school-goers; different for different levels.
2. Explosion in scientific knowledge.
3. Integrated approach for the teaching of science.
4. Special needs of the local environment.
5. Introducing day-to-day evaluation besides the other techniques for a better evaluation of the learners.

III. Study of the textbooks for adoption/adaption in light of the following points:-

1. Content should be accurate, uptodate and lucid in presentation.
2. Needs of both the average and the bright learners.
3. Use of simple language.
4. Provision of activities and experiments for learners.

5. Inclusion of well planned illustrations.
6. Inclusion of meterial for supplementary reading.
7. Special needs of the local requirement.

IV. Some typical problems of adoption/adaption of the materials in the regional languages:-

1. Problems of adopting the Hindi terms and spotting of the proper terms and framing simple terms if required.
2. Making the best use of community resources.
3. Survey of the common materials for use in the teaching of science subjects.

V. Mention about the planning of:-

1. (a) List of source books - foreign.
   (b) -do- - Indian
2. The programme, its follow-up and for launching their adapted/revised courses, (in phases in all the schools of the State). Glimpses of the experiences with experimental schools at Delhi.
3. A state-level Instructional Material Centre or a museum and some mobile units for keeping the teachers and other persons well informed about the new developments about the project and otherwise.

Suggested Readings

1. The development of Primary Science Education at NCERT by B.D. Attreya and A.W. Torrie; School Science September, 1967, Vol. VII No.3, pp 187-98.
2. Unicef Aided Project on Science Teaching at the School Stage, Published by Ministry of Education, 1969 pub. No. 816. (This pamphlet is printed simultaneously in English and Hindi) pp 63.
3. Subsidiary plan of operation for starting a Pilot Project under the recognition and expansion of the teaching of science to students throughout the school stage in India (Unicef Assisted Project). A cyclostyled paper pp 77
4. Science in Primary Education by N.K. Sanyal and B.D. Attreya, Seminar on Primary and work-oriented Education - A collection of papers, pp 56-69; NCERT 1970
5. World Science News December, 1970 Vol. VII No. 12 a special issue on School Science etc. the relevant articles.

PHYSICAL FACILITIES REQUIRED FOR SCIENCE TEACHING AND ROLE OF SCIENCE KITS

K.S. Bhandari

Success of any science programme (with well defined objectives) depends upon many factors but out of these the most important are:

i) Training Received by the Teachers (from key institutions etc.)

ii) Actual class-room performance of the teacher, in teaching-learning situations.

iii) Facilities and materials available - for teachers and students.

The analysis of the various teaching-learning situations shows that none of the aspects of the science-programmes, mentioned against its No. (i) and (ii) above can be effectively achieved without utilisation of the aspects mentioned against item No. (iii).

		P.F.	P.F.	P.F.
Key personnel	Science Programme	Teacher		Student
		I.M.	I.M.	I.M.

(P.F. = Physical Facilities)
(I.M. = Instructional Material)

Physical facilities relate mostly to Science study room and Science laboratories.

Very often it is understood that a science laboratory is a sophisticated room having all the facilities like provision of gas plant, large laboratory tables fitted with water taps, light, power and gas points etc., without which science could not be taught in a school. It hardly serves an integral part of the course of science instruction (as theory and practicals classes are conducted separately),

In view of the resources of the country and availability of meagre funds much simpler rooms so called Science Study Rooms (change of nomenclature only) can be organised.

Such study rooms may be equipped with simple equipment improvised apparatus, science kits, and cheap visual aids etc. to enable the teacher to combine facilities with teaching techniques and conduct modern science course in an efficient and effective way.

A science Study room should become an integral part of course of science instruction related inherently to class discussions and text materials.

Need of Science Study Rooms/Science Laboratories

On the basis of the modern achievements in Science and technology, the major development at the school level has taken place in the teaching of science. One of the development is the change in the subject content and another is the change in the methods of teaching ('Technology of Teaching'). This has greatly affected the accommodation that the Science Subjects should have at the schools. In India, till recently, Science was taught in most of the sec.schools as only one subject, up to the middle stage and in certain cases up to high and higher secondary stages. Now on the recommendations of the Education Commission (1966) the subjects like Biology, Physics, Chemistry and Mathematics are to be taught as separate disciplines starting from the middle stage.

These subjects are experimental in nature and therefore it is difficult, without proper equipment and apparatus, to provide opportunities to students to understand science, to develop creative thinking cognitive domain (knowledge and intellectual skills relevant to the use of knowledge).

Moreover the students by handling the Science equipment and apparatus not only acquaint themselves with tools and materials but also develop certain skills which make them capable of taking research type project even at school level.

These days, great emphasis is laid upon individualised instructions in order to stimulate and encourage a pupil to explore actively the word.

CONCEPT OF DEVELOPMENT : DEVELOPMENT DURING PRIMARY SCHOOL STAGE WITH PARTICULAR REFERENCE TO COGNITIVE AND SOCIAL DEVELOPMENT

Manjuli Gon

In biological sciences the concept of development has been most commonly associated with the organization of living structures and life processes. Psychology, being basically a biological science, is concerned with the understanding and explanation of behaviour and experiences of human individuals as living and evolving systems. In contemporary organis-mic biology, ethology, psychology and other social and life sciences, such systems are designated as 'open systems' as different from the 'closed systems' used in physics and other natural sciences. Numerous researches, both theoretical and experimental, have shown that in an open-system there is intake and output of both matter and energy; there is the achievement and maintenance of steady states, so that the intrusion of outer energy will not seriously disrupt the internal form and order; there is generally an increase of order over time owing to an increase in complexity and differentiation of parts; and finally, specially at the human level, there is more than mere intake and out put of matter and energy: there is extensive communication and transaction with the social and cultural environment, increasingly through the use of higher order symbols. Keeping in view all these inherent attributes of human life and also all the controversies and investigations in the area of contemporary developmental psychology, one might view development as a multidimensional process of transformation (both quantitative and qualitative hence continuous as well as discontinous) resulting from intra-organismic interactions and interactions between these intra-organismic activity patterns and stimulus inputs from the various spheres and levels of the environment. The process of human development is characterized by increasing differentiation, integration, spontaneity, communication and emergence of novel and more efficient forms of dealing with the self and the surroundings.

The present seminar is only concerned with the problem of cognitive and social development during the primary school stage. In our culture, the primary school stage refers to the age range between 6 to 12 years. The patterns of transformations that take place in the cognitive and social behaviour of the child at various points in this stage, are interdependant phenomena, the causes and effects of these are not therefore mutually exclusive or discontinuous. One might say that cognitive development is a special instance of the general process of social development taking place in a given person and vice versa.

Cognitive development refers to the gradual transformation that takes place in the ways of receiving, representing, communicating and reflecting upon the various kinds of information that emerge from diverse patterns and levels of organism-environment interactions. Some of the distinctive changes that take place at this stage are caused by the increasing assimilation of the objective reality. The logic of the cognitive activities that develops at this stage is the result of the child's differentiation of two reversible operations, inversion and reciprocity, which gradually gets coordinated with the development of formal thinking. Some of the important mental operations that should be taken into consideration in the process of teaching and in the organization of curriculum, are known as reversibility, inversion, reciprocity and conservation. Towards the end of this stage the child comes to operate with operations by means of symbolic propositions.

As regards the social development, much of this, however, evolves from cognitive functions and gets crystelized due to the development of efficient symbolic vehicles of language for communicating and interacting with the emerging self and the so called objective world. The vicarious experiences encountered in a rapidly expanding social world however may mean very different things to persons belonging to different socio-economic, religious or linguistic communities or persons belonging to different cultures or different generations even though the age range for the primary school stage may be kept constant for all. The major changes during this stage are generally caused by the simultaneous emergence of two overwhelmingly influential groups of social objects: peers and teachers. The process of developing social skills is catalized not only by the school but by the peer group also. The peer group provides both the norms and the opportunities for learning the modes of interaction with interpersonal world, specially with the peers of opposit sex. The pre-school child moves towards peer group for psychotherapeutic purposes also. The ways in which peers react towards him and the bases upon which he is accepted or rejected, give him a clearer and more realistic picture of his assets and liabilities. The role of the teachers and the school is at once most important and most delicate too. And a teacher perhaps more than the taught, require cognitive and social maturity and development to fulfil the purpose of education.

COGNITIVE DEVELOPMENT OF CHILD

R. Murlidharan

The human organism like any other biological organism develops through differentiation and integration of the structures and functions, as a result of the interaction between the organism and its environment. These processes are evident in cognitive development. Learning thus plays an important role in the formation of mental structure but not the kind of learning which involves just stimulus-response mechanisms.

Here learning is viewed as a cognitive process where events are related and things are put together on the basis of general categories. This is an active process where categories represent the general manner in which the general and specific law have been related as a result of interaction between the outside world and the organism. Initially these representations are simple structures and are gradually transformed in the course of application, assimilation and accommodation as a result of which restructuring takes place.

In the process of development one can recognise successive levels of organization. Thus at any stage of development one can see some organization of adaptative behaviour. The later the age the higher is the level of organization. Given the same problems, children at different levels of development will tackle them differently. This order or sequence of individual development may be accelerated or slowed down due to the social mileau and cultural factors but the sequence remains unchanged. However, this sequential progression is not the result of adult teaching. Cognitive development in a particular area depends on general experiences which may be age limited and cannot be replaced by structured experiences provided by adult instruction. Although some correspondence may be apparent between ages and stages in normal situations, these are not necessarily linked. .

Piaget and his collaborators have formulated one of the most systematic and comprehensive theory of cognitive growth. The theoretical system evolved by Piaget takes into account the adaptive process which emerges as a result of interaction between the environment and the progressively changing intellectual make up of the child.

i. Sensory motor stage-from birth to 18 months. There are 6 sub-stages in the sensory motor stage:

a) Reflexes

Duration Ist one month-

Characteristic: Excercises of the reflexes and its improvement e.g. sucking.

b) Primary Circular Reactions:

Duration: Ends by fifth month

Characteristic: Coordination of reflexes and responses.

c) Secondary circular reactions:

Duration : 5-10 months

Characteristic: Repeats intentionally responses which produce results to his liking.

d) Means-end behaviour:

Duration : Last 3 months of the Ist year

Characteristic: Distinguishes between means and ends and uses established response for obtaining a goal

e) Invention of new means by experimentation:

Duration : 12-18 months.

Characteristic: Begins to perform new activities.
Play begins to appear.
Expresses curiosity etc.

f) Internalization of sensory motor schemata and detour-behaviour.

By the end of 1½ years the child enters this stage. It is a perfection of earlier stage. Delayed reaction, strategies for problem solving, etc. begins to take root.

II. Concrete Operations

a) Period of formation (Preconceptual and Intuitive stages) - from 1½ to 7 years a period of field dependent and concretistic thinking, noticed particularly in "Irreversibility of mental actions."

b) Period of equilibration 7 - 11 years. Allows reversibility of mental operations which makes it possible for it to solve arithmetical problems. Concepts show relative independence of the concrete objects and operations. In other words there is an advance in the level of abstraction and symbols make their appearance in the child's thinking.

III. Logical abstract thinking (formal operations)-

It becomes possible after the earlier stage.

Bruner's Theory of Cognitive Growth

Bruner's theory of development concerns itself with the cause of cognitive growth and the processes involved in the functioning of the human intellect. He takes the stand that the shape of the human mind is determined by the way it is used. This lays emphasis on techniques and their mastery. These techniques are learnt by the child not through his own efforts alone these are transmitted by the culture in which he grows up. The child internalizes the basic ~~skills and~~ operations by structuring the relevant past experience in an usable manner and it is this process of internalization, this interaction between the individual and environment which Bruner describes as representation.

According to Bruner these representations take three forms enactive, iconic and symbolic.

All three types of representations are evident throughout an individual's life, although they make their appearance at different periods.

1. Enactive Representation ~~is the earliest~~ mode.
Here past events are coded through motor responses (cycling, driving etc.)

2. Iconic Representation. It develops next. Here past experience is processed by organising precepts and images selectively interpreting their spatial and temporal qualities.

3. Symbolic Representation: Here, language plays an important part. An individual achieves remote reference, transformation and combination.

Thus, the processes involved in cognitive growth requires mode of representing the environment and the capacity to transcend the present by linking it to the past and future resulting in integration. Action images and words are the successive tools of representation.

Implications of the Research for education: Piaget's view on the role of educational experiences as a factor in cognitive changes stem from his overall functionalistic orientation. Active individual environment interactions are only the means by which the child gradually constructs a stable body of information about the physical world, the individual self and the action sequences themselves. The major focus is upon the central role of individual's actions and associated outcomes of these actions as mediators of cognitive change. The emphasis upon concrete action colours most of Piaget's educational considerations, specially with regard to the period of middle childhood (6-11 years).

Three points of contact between research and educational field are:-

1. When a certain content or subject area should be taught?
2. What content subject matter is most important.
3. How it may be best presented to the pupils.

1. Timing considerations:

It is the sequence of cognitive stages which provides the basic rationale for determining which skills or abilities are pre-requisite to later, more complex functioning. Stated simply, if Stage or task C achievements are desired in an individual pupil and he has been found to demonstrate adequate Stage A capabilities, then instruction or training should focus on Stage B skills and task settings. Thus, the particular stage specifications indicates when to intervene and when to present from the content area in question.

2. Curriculum content

The great power of Piaget's model lies in its generality and potential application to broad range of achievement areas subordinate to logical thought processes or reasoning. This is the essence of the structural components and logical operations and to the extent these general factors are found to intergrate a wide range of superficially distinct subject disciplines, the impact on educational practices should be far reaching.

It has been found that it is possible to alter conservative performances by giving instruction in such logical prerequisites such as reasoning, multiple classification, multiple construction and to their conservation of invariants.

3. Teaching strategy

How best to present the various subject area to the child? It is here that Piaget's emphasis on the individual action patterns becomes relevant. As indicated previously cognitive change is made possible by the action, interaction the child and his surrounding physical and social environment. Experiences in the classrooms are no exception to this. Piaget says "experience is always necessar for intellectual development..........but I bear that we may fall into the illusion that being submitted to an experience (a demonstration) is sufficient for a subject to disengage the structure involved. But more than this is required. The subject must be active, must transform thing and find the structures of his own actions on the subjects."

It is this cognitive reorganization made available by "self-discovery" in the classrooms which Piaget along with Dewey and Montessori, stresses as a crucial element

The student must be actively engaged if the learning process is to be effective. For the concrete operation period child this entails an actual concrete manipulation of the objects or task materials in question. Once the fundamental action patterns are mastered, the training programme could gradually draw the child away from the explicit concrete material settings to higher representational levels in which emphasis would shift to convert internalised operations at ever increasing distances from the immediate perceptual context.

The mechanism evolved by Piaget for mediating cognitive restructing is the equilibration process. This process centring upon the temporary imbalance between the major functional activities of assimilation and accommodation is usually conceived of as invoking some form of conflicting situation. The conflict develops between the child's partially established schemes and new environmental demands which are meaningful to the current level of psychological functioning. The task set for the child has to be just beyond the reach of the child for conflict to occur—neither too easy nor too hard. While the conflict is within the child's thought pattern, the classroom teacher can create mild conflict within the problem setting, for example, alternate methods for obtaining the same problem situation. As the child is forced to reconcile these distinctive methods to problem solution, he may discover the superordinate rule which subsumes all the methods.

Related to the conflict propositions are Piaget' views of group dynamics and social interactions. He feels that the child's social setting in this case, classroom, should be an integral element in the process of cognitive growth. "When I say active" I mean it in two senses. One is on acting on material things. But the other means doing things in social collaboration in a group effort. This leads to a critical frame of mind, where children must communicate with each other. This is an essential factor in intellectual development cooperation is indeed "Co-Operation".

Thus peer relationships may be one means of setting natural conflict forces in motion to facilitate the cognitive reorganization of the individual participants. Group problem solving and discussion are one means of accomplishing this. Although the cognitive structures of young child is generally not influenced by peer-related conflict situations the concrete operational child is able to assimilate the difference in view point and alter his conceptions accordingly.

Assuming a basic connection between development theory and educational application, the research generated by Piaget's ideas should be of great assistance to the teacher and curriculum designer. The major task of implementing these ideas and translating the principles into operational educational procedures remains to be accomplished.

Importance of Early Childhood in Cognitive Development

Before I conclude I would like you to look into the implication of one more study namely, that of Bloom. Bloom after his analysis of a large number of longitudinal studies concluded that environmental influences on a growth variable is most effective during the period when that variable is subject to most rapid changes.

Bloom states categorically that 80% of the variance in intellectual development at adolescence is determined by the time a child is 8 years old. The implication of this finding is that the maximum intellectual development takes place during 3 to 8 years and the experiences provided during this period will determine the quality of development. Ultimately, however, the application of this finding to the programme of cognitive development in young children have yet to gain momentum.

Schooling in Early Years

It is a well-known and oft-repeated fact that wastage and stagnation in the early primary classes in India is very high. Faculty curriculum content and teaching strategies on the part of the school and lack of school readiness on the part of the school and lack of school readiness on the part of the pupils are responsible for the present state of the primary school education.

At the age of 5-4½ years when most of India's children go to class I, the following data show the disparity that exists between the urban and rural child in school readiness.

1. Colour Discrimination

While the urban child is able to differentiate all colours (red, blue, green, yellow, white, black) by 4½ years, the rural child is able to discriminate only black.

2. Number concepts

While the urban child is able to say the number of fingers in the right and left hand by the 4th year, the rural child is unable to do so at 5 years.

3. Language

While the urban child is able to name a picture of a hut from 2½ years, the rural child is able to do it only at 5 years, that too marginally 55%.

While the urban child is able to comprehend and answer correctly by 3 to 3½ years (hot cold, lost hurt) the rural child cannot do it even at 5 years.

The data show that the rural children who form the bulk of India's population come to school with a bad deficit. One way to bridge the gap between the two groups is to give the rural child an educationally oriented pre-schooling before he comes to the primary school. Primary school education itself will have to be changed. With the improvement of textbooks and teaching strategies, perhaps we may be able to avoid this large wastage to a certain extent. It is advisable to introduce more informal play-way techniques into the primary school to make the programme more interesting and realistic to the children.

Action oriented programme giving a child a variety of experiences, enabling him to observe the relationships, the differences and similarities letting him differentiate and classify and helping him to generalize should make our primary school education more effective and meaningful.

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UNDERSTANDING & IMPROVING SOCIAL EMOTIONAL CLIMATE OF THE CLASSROOM

A. Sharma

The central task of school is to help pupils learn skills and information effectively and economically. The term learning is no more confined to intellectual learning but it also includes 'motor learning', social learning (acquiring skills for getting along with others), and 'emotional learning', (developing and training our feelings and attitudes). Secondly, effective teaching in schools is done in groups and in classes; and all learning takes place within the setting of student-student relationships. All teachers and educators implicitly recognise that an individual student's academic, social and emotional growth can be affected favourably or adversely by his position among class-fellows and that all students stimulate or thwart each other in many ways.

The teacher should realise that the social atmosphere is very largely created and maintained by pupil interaction and their functioning. Therefore, the teacher must know the 'syntality' of the group (class personality) besides knowing an individual child's personality and the subject matter in order to teach them. The teacher should also know how to direct group forces so that they work for learning instead of against it in order to vitalise the teaching-learning process.

Group Mental Health

The mental health of a class group is as important to the learning process as the mental health of individual students. Group and individual mental health are interactive. The class climate affects the emotional health and development of the individual student as well as his degree of learning.

Students who fear self-exposure and failure may feel isolated or rejected; may have anxieties about personal ability. Stress anxiety, feelings of rejection, failure, and lack of belongingness are strong contributing factors to the state of mental health of the individual. Students who are anxious and fearful about self exposure and who have low personal assessments of their own abilities tend to withdraw from the learning situation. The classroom climate has an impact not only on the weaker student but also on the one who remains unchallanged.

The essence of good teaching is not to protect student from exposure of inadequacies, learning and change but to create supportive conditions enabling the individual to undergo the process of learning, to handle his anxieties, to experiment with new ways of thinking and behaving. The important point is that the teacher alone cannot supply all the support necessary

They are gained through guided experience in social setting. They can be learned in any classroom setting, no matter, what the subject matter. Such additonal and emotional learnings need not be separated from the subject matter learning, but rather can support and increase it.

Emotional and Intellectual Learning.

Emotion may inhibit or encourage learning. Diagnosis of learning difficulties should include examination of emotional as well as intellectual causes. Intellectual and emotional learning need to proceed to gether. The individual who grows intellectually but remains immature emotionally may be as ill equipped for the problems of living as ~~the persons~~ whose intellectual growth is slowed.

The chief goal of the teacher ought to be the prevention of pupils' failure. The failure would result in feelings of guilt and rejection. The attitude of teachers and classmates towards it can add to the frustration caused by failure. The reactions may take the form of withdrawn or aggressive behaviour. In the classroom the emotionally disturbed may be so preoccupied and anxious that direct teaching may not benefit him. It is, therefore, essential that his original anxiety or hostility must be removed first.

for all students, particularly when the classroom climate itself creates more stress for the individual.

Children denied acceptance at home or neighbourhood, are forced to secure it at the terrible price of gang conformity; could be helped to gain healthy and supportive membership in a class group. The important point is that the teacher cannot really confer group membership. However he can do much to create an atmosphere and provide leadership and encouragement to build a group in which all students can gain a type of acceptance, meeting and personal needs as well as removing blocks to learning. In this way social-emotional and intellectual conditions for learning can be more evenly developed and more adequately integrated and good class mental health may be insured.

Social-Emotional Learning.

The values of social and emotional learning for students are obviously important for healthy and effective learning. Some life problems cause anxiety and even upset the whole life. These are the problems which are reacted to 'emotionally', not logically. The emotional problems upset one's judgement, cause one to become ill or disturbs one's personality.

Desirable social-emotional development demands skills as well as attitudes and understanding. Learning of skills takes place with reference to meaningful experiences

Democratice Values

When children are grouped on the basis of adequate information about the individuals in the class, they can develop qualities of leadership, cooperation responsibility and democratic living. In group situations, children discover that people working together can usually accomplish more than one person alone. In groups, they can plan some of their learning experience, grow in self direction and learn to evaluate their progress. The Teacher who reserves for himself all the giving of help and support deprives his students of the chance to realise the importance of caring for others.

Effective Social Membership

In an increalingly socially complex, inter-dependent world the ability to be an effective member of a variety of social groups is of basic importance. People do not adequately make and implement social decisions alone. The ability to live with ambiguity and change, to work interdependently, to be socially inventive, to meet new social requirements are all pre-requisites for effective social membership.

Research and experience indicate that mature healthy groups stress the increase of individual differences and encouragement of individual growth. They respect and accept the individual. In less healthy groups, little concern is felt for group climate, and standards usually develop which reduce individual freedom and inhibit individual growth.

Effective Social Leadership

Significant changes in concepts of leadership have taken place during the past two decades as research has been increasingly directed to the problem. These changes have led away from the concept of the driving, aggressive person- the leader to one whose efforts were directed toward releasing others to be creative and productive.

Leadership is the other side of the membership coin. Effective leadership encourages members to be increasingly involved and participate in group effectiveness.

The class, with its continuing problems of group maintenance and group tasks provides opportunity from time to time for students to experience; with careful guidance, leadership activity which involves, assists and releases others.

Creative Social Organization

In this rapidly changing society where new organisational patterns and new social inventions are emerging, people need to learn not merely about present social organisation and their place in it, but more about the process of social and organizational development, the need for social invention, and the skills of bringing about change.

Each class situation provides an ideal laboratory situation in social creativity. A group is to be formed, built, developed and maintained. If this process of group formation is a conscious one then at the end of their schooling, the pupils become competent members of families, organizations, communities and the nation. -

Understanding Class Climate

There are many ways of getting information on the relationships operating among students. One way is to observe the children. By observation he can make some fairly accurate guesses about his students. But in order to use fully the laboratory at his disposal for educational ends the teacher needs a systematic technique. Students action do not always show how they feel toward one another. For many reasons-shyness, slowness, difference in status or in achievement-students do not express their wishes in observable behaviour. With the help of simple instruments, it is now possible to secure preferences in associates that are not present in behaviour; it is also possible to develop such group life in a classroom as will engage the inerests of the classmembers in one another, widen mutual appreciation. This psycholcgical exchange provides maximum opportunities for the satisfaction of varying individual capacities and promote the stimulus and satisfactions possible through joint action.

PSYCHOLOGY OF LEARNING AND ITS IMPLICATIONS FOR SCHOOL LEARNING

E. Marr

There are several theories of learning and each has some thing to contribute to the learning of school children. The importance and relavance of a theory depends on the kind of learning we are considering. Only some of the major theories are discussed below.

To begin with there are theories which emphasise the making of correct responses to given stituations. Among these there are two major groups. One associated with classical conditioning, which stresses the connecting of a stimulus and a response. This is done by the individual repeatedly producing a response when a particular stimulus is presented. The other group is of the view that learning takes place when the individual has a motive and tries to achieve it by trial and error, and responses that are re-inforced or rewarded are learnt while others are eliminated. These theories have relevance for the learning of skills such as writing, spelling, multiplication tables, cycling, dancing etc. Since many behaviour patterns are also formed while the child is too young to understand the situation in which he finds himself. They also take the form of habitual responses and these theories have much to teach us about their formation and modification.

The learning of habitual responses is important, because it saves the individual much time and effort. For example the answer to 6X4 = can come automatically without the need to stop and think. Similarl we write without thinking of the movements our fingers are making. Infact such responses are better made automatically without our trying to analyse them. For ~~example, it~~ would be difficult to cycle if each time we stopped to think which foot to press down. It is also seen that we tend to spell correctly when we write hurriedly without stopping to think of how a word is spelt.

Habitual actions are involved in the simple skills of daily life such as walking and eating, as well as in the highly developed arts of music and dance. Learning them accurately and well adds ease and grace to life. The S-R theories provide us with some guide lines for learning of these actions.

To begin with if a response is to be learnt repitition or practice is necessary. Errors should be corrected early, otherwise an incorrect response will be learnt. It is also important that the correct response is rewarded, even if the reward is only recognition that it is correct. Examination results and prizes are so far removed from the responses the child makes in the class room that they do not serve the purpose of reinforcing them.

A response once learnt can be extinguished and new response learnt in its place. Similarly a bad habit or undesirable response learnt by a child can be remedied. For this it is necessary to discourage the occurrance of the response that is to be extinguished and reward the response that is to be learnt in its place. Sometimes a response that was originally learnt and then extinguished may re-occur. This is more likely to happen under conditions of stress, hence scolding a child may create the very conditions of stress that elicit the old response.

Learning by Insight is emphasised by the Gestalt Psychologists. In their view the individual reacts to the total situation not to isolated stimuli. Learning is achieved by seeing relationships and re-defining a situation. Learning by this method is economical; it eliminates repeated trials and is retained more easily. All higher forms of learning require learning by insight, and hence it should be fostered in schools. It is necessary to help students to perceive a situation clearly and to see and understand the relationships. For this the necessary experiences have to be provided. Giving children an opportunity to handle and see things for themselves or where that is not possible the use of various aids helps them to perceive the situation clearly. Further the situations presented have to be graded in complexity beginningwith the simpler ones.

Too often learning by insight is not carefully fostered in our schools and when they fail to see the relationships and children tend to fall back on associative methods, e.g. learning a theorem by heart rather than trying to understand it. When children get the idea that the material presented in schools is to be memorised rather than understood it defeats the very purpose of education. To guard against this it is necessary to carefully plan the learning experiences of children, insuring clarity and graded steps.

Learning by imitation has until recently been strongly neglected by those interested in learning theory. In actual fact imitation is a powerful factor in human learnin The role of imitation is seen clearly in learning to speak a language. In this matter difficulties faced by the deaf make the role of a model evident. In learning to hold a pen or to handle any instrument, at least in the beginning stages imitation is an important factor. Copy writing books for children in which they copy a printed line are also based on the principle of providing a model.

From early childhood children learn many behaviour patterns through imitation. Often this imitation is unconcious.

A school can do much for its general tone and the behaviour of its students by providing suitable models. Role models need to be provided in areas such as good speech (which includes not only correct speech, but also modulation of voice, and choice of word), good manners, nearness, and even behaviours such as honesty kindness etc. It is found that children try to emulate a model who has prestige, appears to be having a good time, has an affectionate relationship with them, and in whom they perceive some similarity with themselves. Teachers and student leaders who have these qualities are likely to influence the behaviour of others.

GUIDANCE IN ELEMENTARY SCHOOLS

E. Marr

The first question that arises is whether we should at all think of introducing guidance in our elementary schools. Considering our meagre resources, and the large number of elementary schools, it is evident that it is not possible to appoint counsellors in them. In fact we have not even been able to provide some of the basic essentials in these schools. Hence if guidance is considered an additional service, or a luxury, it is not practical to introduce it at the elementary level. On the other hand if guidance is seen as an integral part of Education, and something that is carried out chiefly through the attitudes and activities of teachers, it may be found to be feasible even under existing circumstances.

At present teachers are often unaware of the problems children may be facing. These may be problems relating to their home conditions, health, or of adjustment to the school community. There may also be difficulties relating to studies, which may be due to differences in ability levels, or deficiencies in previous learning, or some other cause.

Both for the healthy development of personality, and for facilitating learning, it is important that attention should be given to the problems of children. There is not much point in trying to teach arithmetic or language to a child who is anxious about something. Even adults find it difficult to concentrate on their work when worried.

A beginning may be under by organising child study circles for teachers. It is not possible for teachers to pay individual attention to all children at the same time. It may therefore be suggested to them that they select one child for study at a time. A child may be selected who looks unhappy or undernourished, who is too quiet, or seems to be unmanageable, or is not keeping up with the class work. A comprehensive case study should be made of the child, including such factors as home conditions, health and educational history, adjustment in the school etc. It must be emphasised that the information collected while making the study of the child should be kept confidential, and on no account should it be used to hurt the child. The case study can be discussed in the child study circle (again ensuring confidentiality) and plans made to find ways and means of helping the child. Sometimes efforts may have to be made to relieve some problems by introducing changes in the childs environment, e.g. in cases of difficulties in the home or health problems. At other times, it may be necessary to help the child to feel accepted or to change some habits which may be annoying to others.

Analysis of learning difficulties and remedial work must also begin in the elementary schools, for it is here that the Foundations of Education are laid, and it is easier to correct deficiencies at this stage than later.

Thus guidance work at the elementary stage will have to be done chiefly through the teachers. This is not only because we cannot provide counsellors but because it is teachers who have day to day contact with children. Even where counsellors are available, a few interviews with them can have little effect unless supplemented by sympathetic handling of the child by the class teachers. ~~If the programme of the child by the class teachers~~. If the programme is to be success it will be necessary to provide constant guidance and encouragement to teachers. At the same time care should be taken to avoid making unreasonable demands on the teachers, for example, elaborate cummulative records in which information is collected but not used are to be discouraged, and only that information should be collected which can be put to use. It is hoped that if teachers are given an opportunity to study individual children, discuss their findings in groups, and to see the results of their efforts to help children, they themselves will develop an interest in such work. Pushing teachers against their will is not likely to serve any useful purpose.

PROGRAMMED INSTRUCTION

C.H.K. Misra

Programmed Instruction is defined as a technique of guiding the specified groups of students through rested steps of a set of pre-determined terminal performance. This entails careful calculation of entry level performance down-to-detail specification of performanec objectives in terms of what the student will be able to do as a result of and at the end of, instruction. Criterion based tests are also designed on the basis of specification of objectives. Now the process of instruction is to be designed in such a manner that the entry level behaviour will be gradually and managebly converted into the terminal performance. There are various styles and techniques for this activity called "Programming," The material developed in this process is referred to as programmed learning material. Sometimes they are presented through hard wares like teaching machines or programmed text books. Some-times the same analysis is reflected in terms of programme tutoring or programme teaching.

There are three major shifts of emphasis under programmed instruction. Firstly, the shift of emphasis is from teacher centered instruction to student centered instruction. Secondly the emphasis is fom group paced instruction to individual paced instruction and thirdly from unplanned to planned instruction. Five major principles of programmed learning have emerged from a short histroy of programmed learning research. The first principle is the principle of small steps which means that the student will be minimised. The second principle is that of active participation by the student wherein it is insisted upon that a student will be required to do something as he learns in contrast to the conventional passive participation in which the student is barely or rarely asked to perform anything. Active participation is given through graded questions and answers as each chunk of inormation is given to the student. The third principle is the principle of student testing wherein it is insisted upon that each activity and each test item will be pre-tested by comparable groups of students and the effectiveness of each one of these steps should be determined far earlier than the actual process of instruction. The 4th principle is that of immediate confirmation or immediate knowledge of result which insist that after every chunk of performance the student will be told whether or not he is correct. ~~Delay in confirmation will result in an correct~~. Delay in confirmation will result in an ineffectiveness of that information. The 5th and one of the most important of principles in programmed learning is called the principle of self pacing. Through application of this principle the student determines according to his own capacity the rate of learning for himself i.e. the fast learner learns quickly and the ~~slow-learner learns quickly and the~~ [illegible] ~~learner~~ learns slowly. Rate of learning is independent of ones intelligence and abilities. Therefore the possibility that the slow learner might be an intelligent student cannot be ruled out. Therefore, we cannot afford to continue in our present system of catering to an average rate of learning which is, to say, the least non existent and depends heavily upon the teachers perception.

The advantage of the analysis and application of the principles of programming in education and training has been proven by hundreds and thousands of researches throughout the world. Our own experience in India has been really encouraging. Although we have made only a small beginning in this field there are ample evidence that programmed material can teach the same input of information in almost half the time without affecting the effectiveness of learning. This applies to all subject matters conceivable under the realm of teaching. We in India do not emphasise upon the hard ware aspect of programmed learning, because most of them are costly and at any rate the Indian student has not learned to operate mechanical aids himself and there will be problems of maintanence and so on. On the other hand the same effectiveness can be attained by programme books. What actually teaches is not the media used but the input of information and organisation thereof. With the rigour on analysis pre-determination and measurement put forward by programmed learning, no wonder it works better in every case. To add to this, programmed learning materials are developed through coordinated team work between programmers, subject-matter experts and editors. So many brains go into the analysis behind the material developed. Some system has been standardised by now through which this analysis can be done. The totality of instruction is decided upon by a process called micro scrutiny where various sequences of the subject matter are analysed and optimised. The analysis of smaller chunks of information through portions of the programmed material are analysed through a process called "micro scrutiny." Each item of information is examined objectively by trained programmers and tried out on students having comparable entry level. This increases the probability that programmed learning material will be more effective.

Possible application of programme learning is indicated in mass media education, public opinion and propaganda education in creative and artistic occupation industrial training, defence training, agricultrual extension and so on. Since this is a process which demands continuous and rigourous attention it is advisable to pick up only the difficult areas which are available in the educational system. One such possibility is science teaching in elementary level. The vexing problem in this field is that the number of trained teachers who will teach these science subjects are not available presently or are inadequate where as we will have to meet this challenge of new science education. May be we shall apply programmed learning for teacher training as well as developing easy-to-understand and easy to-operate kits and learning material for the use of our students. Considerable work will be needed before we come out with a set of programmed material for this and other important purposes. This is a challenge not only to the teacher educators or educationists of the country but more so to the trained programmers of the country. Existing programmes in India in various fields should be collected together and examined for utility in various fields and tested through direct application. If they work they should gain acceptance. Presently training facility for programming as a technique is made available by the NCERT through one course per year. Apart from NCERT the Indian Association for Programmed Learning, the Centre for Advanced Studies in Education, Baroda, the University of Delhi, Department of Psychology, certain Defence Directorates of Education and some local chapters of the Indian Association for Programmed Learning are busy organising courses, developing material and conducting smaller researches in the field. There is precious little in terms of encouragement or pecuniary reward for this activity so far. Recently the Unesco has sponsored a project for introducing programmed learning in South East Asian countries. Effort are likely to succeed under this project in near future.

MICRO-TEACHING

C.H.K. Misra

Micro-teaching is an extension of the concepts of programming into general day-today activity. The process is much more creative however, and demands real creative ability from the teacher concerned. Usually the process of Micro-teaching is conducted by giving 5 minutes lessons to the students in a classroom and covering not more than just one concept at a time. After this in put the students are allowed to apply this concept through discussions and other educational activity. In order to succeed however, Micro-teaching is to heavily depend upon the analysis of the instruction process in the same manner as in programmed instruction. The micro scrutiny will have to be applied for these small concepts as well. Research and training in Micro-teaching are just beginning in the World. So far Micro-teaching has succeeded well in the elementary level for science teaching. This requires very intensive training for teachers who will be required to creativly process these concepts in their classroooms. Regular flow charts for the total instruction will have to be drawn up before creative teaching starts. At this stage all possible questions, answers and application will have to be programmed. From micro unit to micro unit the teacher will be required to guide the student through with creative effort and imagination. Sometimes aids like film strips and micro films are used to aid the teacher. Sometimes flip charts and other audio-visual aids are also used in the class. Remedial teaching for backward students are also provided. A special school plan design may be an ideal condition for Micro-teaching but if we are prepared to accept this in principle it can be applied even in an ordinary school.

COMPREHENSIVE PROGRAMME OF EVALUATION AT THE PRIMARY STAGE

Y.B. Patwardhan

It is known that it is very difficult to correctly define the term 'Education'. But one can start with a working definition that Education is a process of bringing about desirable changes in the pupil behaviour. This definition when analysed gives a direction to efforts in education. It envisages the statement of educational goals or purposes in terms of outcomes. It also envisages the effectivenss of process of achieving educational outcomes. The first covers the educational objectives and the second covers methodology of teaching. To find out the appropriateness of these objectives as well as the methodology the evaluation procedures are developed and used. The comprehensive programme of evaluation, as such, envisages the following major steps.

Statement of Educational Objectives

The educational objectives have to be defined and clarified in terms of pupil behaviour. The objectives are to be drawn from various sources such as social needs, pupil needs, ideas of good life psychology of learning and nature of subject matter. The objectives have to be defined at various levels such as the national level, the State level, and the institutional level and the various stages such as the primary stage, the secondary stage and the university stage. In a particular subject they will also have to be defined for subject as a whole as well as for different units and lessons. The statement of objective should clearly indicate the mental process to be developed or the behaviour change to be brought about through a particular specific content area.

Pre-testing programme

This programme should aim at providing information regarding the status of each individual pupil in respect of various objectives as defined. This will help to provide for proper education to each pupil taking into account his or her strengths and weaknesses.

Objective based instructional programme

Having defined the objectives and having obtained basic information about the pupils, it is very necessary to develop suitable instructional programme which will involve appropriate curricula, good textbooks and other instructional material and proper teaching methods. All of these should be oriented and guided by the objectives already defined.

The whole programme will have to be implemented by suitably qualified and competent teachers.

Objective based evaluation

a) Tools and Techniques

Effectiveness of the instructional programme will have to be measured and valued against the objectives already set-forth. As such, a very sound evaluation programme for this purpose will have to be evolved. The essentials of this as in any measurement programme are:

Validity
Reliability
Objectivity and
Practicability

These may be translated into the following practical steps. The tools should be objective based. They must test pre-determined objectives. The judgement can only be given if the instrument is comprehensive covering all the objectives and the whole of the content area covered. For this purpose, a proper pre-planning is necessary. The evaluation should be objective and accurate. It should be as continuous as possible if it is to be of real use.

For achieving the above ends, we will have to use a variety of tools depending upon the variety of content and objectives. Such tools are written tests, oral and practical tests, observation techniques, inventories, check-lists, anecodotal and cummulative records etc. These will have to be very carefully prepared and used.

At the lower primary stage, essentially observation and oral tests and some written or practical tests will be more effective. In higher primary classes, however, more written tests can be used. Our teacher training programme will have to be re-shaped to provide training in preparation and use of such material.

The continuity of evaluation should be an essential element. But it should be interpret~~t~~ed in the right spirit. Here it connotes that the teacher should use an informal or a formal way of knowing the effectiveness of his teaching. The more continuous is the evaluation the better it is for every one concerned. This is very necessary because the earlier the teacher gets the knowledge of any wrong that might have happened to pupils it can be used to rectify the wrong. The knowledge if it is too late will be of no avail.

For developing the accuracy of measurement not only the proper tools should be prepared and used but detailed and objective marking schemes should also be prepared in advance and used.

(b) Collection and interpration of evidence

The data regarding each pupil obtained from measurement should be meaningfully and carefully recorded. Suitable proforma for this purpose will have to be developed. Cummulative record in suitable form will be very useful in this connection.

The interpretation of the recorded data is a highly technical skill. The teacher training will take a care of it, but only to a limited extent. The effectiveness of the evaluation procedure will depend on the effeciency with which teachers can interpret their own observations and use the interpretation in the interest of pupils.

(c) Use of results

The results so obtained when properly interpreted can be used very effectively for a number of purposes, such as the promotion to higher classes, classification into different streams or divisions, selection for various purposes or educational and vocational guidance. At the primary stage, however, it is mainly the educational guidance that will have to be emphasised and teachers will have to be specially oriented for this purpose.

These results will also throw light on the objectives already defined, the teaching procedures utilised, and also the evaluation programme implemented. In the light of these results all these aspects can be modified and improved. Our education programme has to make good use of all the important valuable data collected through evaluation.

(d) Reporting procedures

Whatever results are obtained, after careful analysis of the achievement of the pupils, they will have to be meaningfully reported to all concerned. Our present system of reporting does not guide either the teachers or the parents or the educational administrators with regard to pupil growth. Thought will have, ~~therefore, to pupil growth. Though will have~~, therefore, to be given to develop scientific procedures of reporting the student growth in various aspects in a meaningful manner. This item will have to be included in the teacher training programme.

Problems of primary schools

In the primary schools obtained in our country there are a number of problems which one cannot ignore while planning for any educational programme. Many of our rural schools are only single teacher schools. On the other hand in urban areas, in one class, there are un-manageably large number of pupils in charge of one teacher. In the same class there are pupils of various abilities and achievements mixed up in an unplanned manner. In addition to all these the physical facilities provided are very poor and there is acute dearth of guidance either from authorities or from any other academic institutions. In view of this, teachers will have to be provided readymade material in the form of teaching units, unit tests, performas for recording etc. This may also be supplemented by some short-week-end training programmes in which the teachers can be oriented for using such new materials. This can be augmented with the help of educational literature published in educational magazines and news paper as well.

Implications

For the effective implementation of the above suggested evaluation programme a good planning and thought will have to be devoted while preparing the syllabusses, textbooks and also while developing teacher training programme. Even the recruitment to the posts of teachers will have to be properly done. Love for the profession should be one of the basic criteria in the selection. After proper selection of teachers, they will have to be provided with strong pre-service and in-service training programmes where the development and use of appropriate tools and techniques of evaluation will be one main activity. The Inspectorate will have to play a very important role in this programme. They will be the academic guide, particularly to rural teachers who have no opportunity to get the help from any other sources.

Agencies involved

This programme is likely to be effective only if the agencies such as teacher groups, primary training colleges and extension centres, State Institutes of Education, Inspectorate and Department of Education play their role well. Teachers, for example should atleast know how to use the material effectively. The primary training colleges, Extension Centres as well as State Institutes of Education should help the teachers in developing suitable material and methods of implementation while inspectorates and Departments of Education should strengthen the programme administratively.

TOOLS AND TECHNIQUES OF EVALUATION

R.G. Misra

Evaluation in India stands mostly for examinations, specially external examination. Therefore the external examination system dominates our education system despite the fact that it has many academic and administrative weaknesses. The only purpose of such examinations is to help us in classifying and grouping the pupils according to their levels of achievement but they miserably fail in a proper discharge of this function. It is wrong to say that a pupil securing 48 marks is better than one getting 47 marks because the marks may not be the true index of the achievement of a pupil.

Need for Improvement

Should we then stop the external examination system forth with? We have to continue it so long as we do not replace it with a better system of measurement. One way to improve the existing evaluation system is to introduce and give enough weightage to the internal assessment system. This, in itself, is a complicated problem. To make it valid we will have to relate it with instruction through educational objectives on individual and group basis. Moreover it should be intimately connected with the learning pattern, specailly at the primary level.

~~In other words~~ it means that we will have to make learning sequential. It has also to be individnalised as far as possible.

Measurement

Educatiion is a mainpulation of human characteristics so that desirable results are achieved. However, there are no tools for measuring human characteristics as they are. It is only indirectly that human characteristics are measured. Sometimes rating scales are made with a view to measure human characteristics. But scales cannot measure human traits in same manner as a thermometer measures temprature. That is why in drawing inferences the user needs to be very careful. Educational measurements have only the semblance of scientific measurement.

Improvement of Measurement

Evaluation should act as an important agent in the improvement of achievement. Evaluation should be broadly related to instruction. Instruction should be planned in such a manner that it helps in the realisation of objectives. Evaluation being continous should provide the teacher and the pupils with immediate feed back with regard to the outcomes and consequent modifications, if necessary, in the teaching-learning process.

Areas of Evaluation

1. Cognitive:- The teacher has to do a great deal of work with regard to this area.

2. Affective:- Very little has been done in this area. It, however, basically controls cognitive area.

It has been found that the negative effect of affective domain at times brings down the I.Q. Thus utmost care must be taken of the affective domain right from the primary stage.

3. Psycho-motor:- This area is also very important in the child's life. Habits formed at this stage persist throughout his life. The psycho-motor activities pertain to the following:-

1. handwriting
2. speech
3. reading
4. posture
5. gait
6. manners.

All these ultimately become part of a child's life.

Improvement of Achievement

Improvement of educational achievement is the main purpose of educational evaluation. Therefore, all the tools and teachniques of evaluation must be intimately related to educational achievement as a whole and not merely with academic achievement. Any attempt to evaluate must be aimed at evaluating a living organism. A teacher needs to determine comprehensively the objective to be realised and the extent to which these have been realised. Such a programme of evaluation has to cover the entire spectrum of the individual's school life. Each individual is unique, therefore, his reations to cognitive, conative and psycho-motor areas need to be properly considered.

Techniques and Tools of Evaluation

Techniques refer to the process and tools to the instruments and appratus used. The techniques that are generally used are as follow:-

(i) Written examination
(ii) Oral examination
(iii) Practical examination
(iv) Assignments
(v) Observation

Affective Area:- Observation (We, however, ignore the observation part which has a great potential, especially in the affective area.)

Psychomotor Area:- Practical examination.

Tools:- There are many tools measurement in vogue today. The following tools are used in connection with various techniques.

Written tests
- i) Question papers-
  - a) Teacher made tests
  - b) Standardised tests
  - c) Diagnostic tests
  - d) Unit tests
- ii) Ability tests
- iii) Questionnaire
- iv) Inventory

Practical tests.
- (1) Performance tests

Oral test
- (i) Schedules
- (ii) Check list
- (iii) Rating scale
- (iv) Anecdotal records

Check lists and rating scales are very effective in making oral examination more objective. ~~information about.~~ Anecdotal records give objective information of the child's personal and social qualities.

Achievement tests are concerned with acquired content of a particular type.

Ability tests on the other hand, are partly concerned with acquired content and mainly with content as acquired through child's interaction with his environment, which is directly connected with the potentialities of a child.

If a child's performance is better in ability tests than in achievement tests it is indicative of the fact that there is something wrong with the instructional aspect.

Diagnostic tests are mainly used for clinical purposes. They ~~are directly~~ connected with remedial work in education. Its purpose is identification of difficulties. Diagnostic tests are made in all the areas, viz. conative, cognitive and affective domains. Diagnostic tests, at the primary stage, should be developed for basic subjects (Language, Maths). Elementary type of remedial work can also be done at the primary level. Such tests can be developed by analysisng the content and errors of the pupils in different subjects. This will help the teachers in determining the teaching points on which to develop the test.

These tests need to be arranged in a sequential order and 2 or 3 parallel tests can be made use of. Diagnostic tests should be followed by remendial work. The remedial work should be directly related to classroom instruction.

To conclude, we may say that learning is possible, or rather convenient when suitable environment and time is provided. Even complex ideas can be learnt by a slow learner provided they are bright down to his level of understanding. If we individualse the case and apply the individual remedy, it is sure to work. Various tools and techniques discussed earlier help teacher in his work but they cannot take the place of a good teacher who is by far the best evaluator.

RATING SCALES OF PERSONALITY TRAITS OF PRIMARY SCHOOL PUPILS

M.T. Ramji

The major function of education, especially at the primary stage is to promote the healthy and balanced development of the physical, intellectual, emotional, social moral and spiritual aspects of the personality of pupils in order to enable them to become useful citizens.

It may be said that in our schools usually these aims are realized to some extent firstly by providing instruction in various subjects and curricular activities during the school hours, and secondly by involving pupils in various co-curricular activities and by trying to improve their ways of talking and behaviour inside and outside the class-room. With these aims in view, usually in our primary schools, owing to the impact of the educational ideas of Mahatma Gandhi, the following programmes areorganized:-

(a) Classroom teaching,

(b) Curricular activites like chorus reading, recitation

(c) Co-curricular activites like game and sports, Balsabha (Students Assembly), celebratuions of festivals and birthdays of great personalities and excursions.

(d) Manual work like 'safai' and gardening,

(e) Creative and artistic work like clay-modelling, paper and card-board work, painting and toy-making

The above programmes, when organized regularly with care give the growing child ample opportunities for the development of personal and social traits like Cleanliness, punctuality, Regularity, Co-operation, Leadership, Helpfulness etc.

Usually, a primary school teacher of our country has to take charge of a whole class (up to V) for the whole day and as such he is with them from morning till evening. He can assess the behaviours of the children and promote the development of positive behaviours by organizing suitable porgrammes. In order to help our primary school teachers in the process of careful observation of the behaviours of pupils and assessment of personality traits which are consistent patterns of behaviours, the project team of the Deptt. of Pre-Primary and Primary Education, N.C.E.R.T. consisting of Dr. Marni T. Ramji, Miss P. Das Gupta and Mr. M.P. Rastogi developed Rating scales and observation schedules of the following ten traits by carrying on systematic research during 1967-70: (1) Cleanliness, (2) Punctuality, (3) Regularity, (4) Co-operation, (5) Leadership,

(6) Honesty, (7) Helpfulness, (8) Curiesity, (9) Obedience, (10) Self-confidence.

For example, the Refined Rating Scales of Cleanliness may be cited here:-

Trait : Cleanliness

Defintion: It is the consistent behaviour pattern which shows that one keeps his body, belongings and surroundings free from dirt.

Refined Rating Scales of the Selected School Situational Behavriours of cleanliness:

I. Keeps his body clean

3	2	1
Very frequently	Frequently	Rarely

II. Keeps his belongings clean

3	2	1
Very frequently	Frequently	Rarely

III. Keeps the surroundings clean

3	2	1
Very frequently	Frequently	Rarely

In order to use the rating scales, it is necessary for teachers to keep in view the school situations mentioned in observation schedules. For example, a teacher has to take guidance from the following observation schedule of cleanliness in order to rate pupils on cleanliness once in a term.

OBSERVATION SCHEDULE OF CLEANLINESS

S.No.	Scale Specifications (School Situational Behaviours)	School Situations
1.	Keeps his body clean	Observed Situations: 1. Keeps his teeth, face, nose, eyes, ears, and hair clean. 2. Keeps his nails clean 3. Takes bath regularly 4. Washes his hands and feet before taking food. 5. Washes his hands and mouth after taking food. 6. Washes his hands and feet after doing craft work or outdoor work. 7. Does not put pen, pencil etc. or finger inside the mouth. 8. Covers the mouth while coughing. 9. Keeps the hand near the mouth while yawning.

10. Covers the nose while sneezing.
11. Does not bite his nails.
12. Does not keep his hand inside the nose.
13. Does not clean the nose with the sleeves.

II Keeps his Belongings ~~cl~~ clean.

Observed Situations:-

1. Keeps his books clean
2. Keeps his bag clean.
3. Comes to school in clean dress.
4. Does not soil the sleeves of shirts/frocks with ink, colour, chalk etc.
5. Uses wet cloth while cleaning the slate.
6. Dusts the shoes before entering the class .
7. Uses clean paper covers for books and copies.
8. Removes the dust before sitting in dirty place(Additional suggested situations).

1. Uses the rubber to earse figures or words.

		2. Keeps craft tools clean.
III	Keeps the surroundings clean.	Observed situations: 1. Keeps the table, the chair in the classroom clean 2. Keeps the blackborad clean. 3. Keeps the classroom, varanda and the school campus free from dry leaves, torn papers cow dung etc. 4. Uses a waste paper box and cleans it regularly. 5. Does not scribble, draw pictures or throw ink on the walls. 6. Discourages others from making the surroundings dirty. 7. Keeps the shoes at the proper place. Additional suggested situations: 1. Cleans the place used for taking lunch. 2. Does not spit anywhere and every where.

As will be seen each scale has three points, 3,2,1 and these have been put against three adjectives 'very frequently' 'frequently' and 'rarely'. Thus' very frequently' denotes the occurence of the behaviour during the majority of observed occasions, 'frequently' denotes the occurrence of the behaviour during half of the observed occasions, approximately, and 'rarely' denotes the occurrence of the behaviour now and then and then during less than half of the observed occasions. The points 3,2,1, stand for weightage to be given to the frequency of each behaviour in a general way.

The teacher is required to follow the following steps in order to rate a child.

1. First, the teacher should go through the definitions of 10 traits and study the Rating Scales and the observation schedules.
2. The next step is to keep an eye on the behaviours of the child during different situations. Keeping in view the observed behaviours of each child during a term, he has to rate each child on the school situational behaviours given in the scales of each trait.
3. The next step is to find out the trait score. Since each trait has three parts corresponding to three school situational behaviours mentioned in the

scales, he has to find out the score in each of three school behaviours separately and then find out the average score of each child in regard to a particular trait. Now trait score 3 means strong development, 2 means fairly strong development and 1 means weak development.

The implementation of the Rating Scales of the ten personality traits mentioned in the Handbook entitled 'Rating Scales of Personality Traits of Primary School Pupils' published by the N.C.E.R.T. in primary schools in different states through State Institutes of Education will go a long way in promoting evaluation reforms at the primary stage.

PROMOTION OF VALUES IN PRIMARY SCHOOLS

M.T. Ramji

The Indian Education Commission stressed the importance of promoting moral, spiritual and social values at all stages of education in our country. A value is what is sought. Values are the guiding principles of one's way of life.

In the age of Science and Technology, there is need to promote values in educational institutions and it is necessary to start with primary school pupils who are in the formative years.

The National Seminar on Primary and Work-oriented Education held in connection with International Education year in November, 1971 in Delhi stressed the relevance of Gandhian values to our modern times and pointed out that Gandhian values are in tune with Indian culture and the essential values stressed by all religions.

The concepts of the existence of one Eternal Universal Life Force and that each individual self is a spark of life force from the Eternal Universal Life Force are the very basis of the idea of the universal Brotherhood of mankind. It is desirable to make all the primary school pupils to understand the above concept through simple illustrations and stories. For example, different toys can be made of mud. Electricity is the same force whether it is present in a blue bulb or a red bulb or a yellow bulb. Similarly, the life-force which is present in an American is not different from the Life-force which is present in an Indian. Similarly, the life-force which is present in a Russian student is not different from the life-force which is present in a Japanese student. The concepts of the existence one- Eternal Universal Life-force and that each individual is a spark of life-force from the Eternal Life-force are discussed in detail in the doctoral thesis of the present speaker, the Concept of personality in the Education Though of Mahatma Gandhi' published by the N.C.E.R.T.

In the light of the recommendations of the National Seminar on Primary and Work-oriented Education, it may be said that it is necessary to promote in primary schools spiritual, moral, social and Gandhian values which from part of our cultural heritage such as ....

COURAGE,
TRUTH,
UNIVERSAL LOVE,
RESPECT FOR ALL RELIGIONS,
DIGNITY OF MANUAL WORK,
SERVICE,
PURITY,

COURTESTY,
PEACE,
JOY.

In order to promote the development of the above values through different curricular and co-curricular programmes, it is necessary for teachers to understand the school situational dimensions of values. With this end in view the present speaker spelt tentatively the school situational dimensions of ten values. For example, the tentative school situational dimensions of the value of "UNNERSAL LOVE" are the following:-

1. Under-stands that there is one Eternal Universal Life-force, known by different Name and Terms in different religions.
2. Understands the essential unity of human family since all human beings are expressions of the Universal Life force.
3. Understands that he is a part of the world community.
4. Has goodwill towards people who belong to different countries.
5. Regards persons of different countries as his brothers, sisters and friends.
6. Is frendly with fellow-pupils.
7. Takes sympathetic note of the needs of others.
8. Adopts persuasive methods while dealing with others.
9. Speaks gently and kindly.
10. Shares his things with fellow-pupils.

11. Assists fellow pupils.
12. Is kind to living creatures.

The tentative school situational dimensions of the value of 'Respect for all Religions' are the following:-

1. Understands that the one Eternal Universal Life-force is known by different Names and Terms in different religions.
2. Shows eagerness to understand different religious festivals.
3. Reads stories pertaining to different religious leaders.
4. Reads different religious books.
5. Shows respect to people who belong to different religions.
6. Participates in community prayer programmes.
7. Participates in the celebrations of different festivals.

8. It is necessary for different State Institutes of Education to pay special attention to the problem of promotion of spiritual, moral and social values in primary Schools.

9. It may be mentioned that the present speaker proposes to develop a Handbook on values for the benefit of primary school pupils on the ones indicated in the present lecture.

POPULATION EDUCATION

R.C. Saxena

Population explosion has become one of the most challenging problems of our tines . Due to population pressure most of the countries of the world are facing serious problems of food supply, poor living standards, lack of facilities such as education, transport etc. At the present rate of growth world will shoot up to 7 billion by the year 2000 i.e. if the rate of two per cent annual growth countinues, there will be twice as many people living on the earth in the year 2000 as there are in 1971.

The rapid increase in population is due to reduction in death rate mainly because of modern medicines and improved health practices. The birth rate has stayed the same during the past twenty years.

The rapid rate of pupulation growth presents serious consequences. It is a threat to economic development because the expanding population consumes the per capita improvement in the economy and little is left for investment. Rapid growth of pupulation also causes shortage of adequate food and nutrition. About two thirds of the people on the earth are underfed or eat unbalanced diet. In spite of scientific and technological advancement the task of doubling the food production by 1980 to maintain the present nutritional level appears to be rather impossible. The population growth also disturbs the structure of population by increasing the proportion of young population and older population which do not share the productivity. Further new demands for more schools, more job opportunities, more health facilities etc. are also created. The increase in population also makes it difficult to achieve a higher standard of living for the people. Poor people are not usually very productive. Poor productivity leads to more poor people. Thus, a vicious circle is created affecting the quality of life as a whole. Urbanization of population also creates environmental problems such as water and air pollution, inadequate transport, shortage of housing, unemployment, over-crowded schools etc.

It is, therefore, clear that the problems created by population increase are of immense maginitude and require serious considerations. The area of population education is a new one and there is no programme to which one might look as a model. Every country will have to develop its own programme keeping in view the social, economic and cultural patterns considering the needs and nature of society in India. The focus in population education could be on (1) population dynamics and population awareness, (2) Education for basic value orientation relevant to family planning objectives and (3) knowledge of the phenomenon of reproduction and other biological factors. In this connection the recommendations made at the National Seminar on Population Education held at Bombay in August, 1969 provide the meaning of the concept.

(1) "The objective of pupulation education should be to enable the students to understand that the family size is controlable, that population limitations can facilitate the development of a higher quality of life in the nation and that a small family size can contribute materially to the quality of living for the individual family. It should also enable the students to appreciate the fact that, for preserving the health and welfare of the members of the family, to ensure the economic stability of the family and to assume good prospects for the young generation, the Indianfamilies of today, should be small and campact, with only two or three children".

(2) "Students at all levels have a right to accurate information about ~~the levels have a right to accurate information about~~ the effect of changes in family size and in national population on the individual, the family and the nation so that this body of knowledge is utilized to control family size and national population with beneficial impact on the economic development of the nation and the welfare of individual families."

The Seminar very clearly indicated that a comprehensive concept of population education should include knowledge about both the quantity and quality of population and the need to control them for happy human existence. "Population education should not be treated merely as a quantitative phenomenon or just an essay in numbers. It is the quality of the population that is most relevant both as a factor of growth and an end product of growth and numbers have to be treated in terms of the effect they have in quality either by way of deterioration or improvement. Population education, therefore, is essentially related to human resource development. Thus population education is not only concerned with population awareness but also with developing values and attitudes so that both the quality and quantity are taken care of."

We are confronted everywhere in the developing world with the phenomenon of rising expectations and aspiration. It is no doubt urgently needed to attain adequate levels of food, shelter, clothing, education, health, employment, recreation and other basic amenities for the people. But it is also at the same time, urgently needed to reach higher levels of living when the human spirit can fully unfold and flower instead of being stifled and degraded due to the harsh pressures of over-population with its starvation levels, physical, mental and spiritual. It is this aspect of improving the quality of life that gives population education its ultimate relevance and highest utility even for regions where no danger from population explosion currently existes, and it is in this context that population education with its emphasis on aware -

ness and understanding of the dynamics of population must be regarded as an integral part of General Education right through the school and even afterwards.

WORK EXPERIENCE

S.C. Chaudhari

The discussion was opened by saying that according to Education Commission recommendations, the socially useful productive work of basic education needed reorientation to suit an industrial society based on science and technology. Consequently, it is necessary to recollect the concept of socially useful productive work of basic education and see how the necessary slant could be given to that programme to suit the present and immediate future requirment. It was also pointed out that the objectives of work experience should be clearly defined. The following are the outcomes of the issues which are raised by the participants:

1. Work experience is a tool of education. Monetary return is not the chief consideration of this programme.
2. It should form an integral part of education which means that a reasonable amount of institutional hours- 15 to 20% should be given to this curricular area and it should be treated at par with other subject from the examination point of view.

3. The learning situations connected with work experience should be meaningful. Problem solving productive manual activities are meaningful to the learners when they are related to the primary needs of life namely, food, shelter, clothing, health and recreation. Thus the programme of work experience will have a wider scope and more broad based.

4. Any productive manual work proves to be educational when the problem solving approach is adopted in persuing with work. The steps of problem solving approach are: problem sensing, study of the related knowledge, materials, tools and processes for arriving at the hypothetical solution of problem, the actual execution of the problem and evaluating it.

5. In order to perform the work intelligently, obviously it will be necessary to take the help from the other curricular areas. Conversely the knowledge imparted in other subject areas are also made more concrete when their application in production is appreciated.

6. In view of the fast growth in technology it is necessary to know the latest development in the field of production under consideration, the new materials and tools that have come in the field and also the improved techniques of doing the work,

7. Experience provided under contrived situation does not help to enter the world of work so smoothly. Hence as far as possible, experience may be provided under real production situations. Such experience may extend from simple observation to actual participation in the production.

8. **In** Work done systematically always results into some return. It is not necessary that such return may be measured always in terms of money and it is received by the producer himself.

9. Craft activities may form a part of the work experience but it cannot form the complete work experience programme whose objectives are wider and broader. The sociological aspect of work experience should not be included while developing any programme. The aim of this programme is not only limited to the development of certain skills and earning of some money but the purpose is to develop desirable attitudes towards manual work and manual workers.

INSERVICE EDUCATION OF TEACHERS IN U.S.S.R.

Nardev Kapruan

In the Union of Soviet Socialist Republics the system of in-service education has been developing since the creation of the socialist country. The existing system of in-service education of teachers aims at continuous improvement of Scientific (the field of speciality of teachers), pedagogical and methodological preparation of teachers.

The basic forms of improving comptence of teachers include: self-education, summer courses, regular and correspondance courses, short-term seminars, methodological centres, pedagogical exhibitions.

1. Self-education

It includes independent and systematic study of scientific and pedagogical literature by teachers and their direct acquaintance with the foremost pedagogical experience. Self-education takes place in three directions: political general, theoratical and linked with the profession. All the teachers , in a compulsory way, improve their competence participating in the work of school (for teachers of primary classes) and subjects methodological complexes.

2. Summer Courses

In these courses lectures are delivered to teachers on Marxist-Leninist theory, pedagogy, psychology, fundamentals of sciences and methods of school subjects. Seminars and Practical work and different kinds of excursions are conducted. There is a variety of institutions which organise such courses.

3. Regular and Correspondance Courses

The study plans and programmes of these courses include independent work of teachers, prescribed **lectures and test-laboratory session. According to their** own consideration the teachers may work on the programme of subject- theoratical preparation or on the programme meant for improvement of pedagogical and methodological knowledge and similarly on the complex programme. The complex programme requires a study of new achievements in the field of science related to the speciality and improvement of level of pedagogical knowledge.

Well organised and planned regular correspondance courses are organised for the administrators of schools.

4. Short-term courses

They are of various durations: two weeks, one week. They are organised by the local organs of the public education, district and towns's methodological centres or institutes of inservice education. The content of the seminars include study of separate problems of instruction and education in the school. Participating in the methodological workshops teachers acquire concrete and more effective ways of pedogogical work. Improvement in the competance of teachers takes place under the guidance of Director of school and Deputy Director School on studies and representatives of methodological complexes. The short term courses provide teachers with the scientific and methodological literature. Individual and group consultations are organised for teachers who are busy with self-education. Visits are organised for teachers to lectures, seminars and workshops in the methodological centres, in the institutes of in-service education.

5. Methodological centres

Methodological centres of Departments of public Education play an important role in improving the competence of teachers. Only in Russian Soviet Federal Socialist Republic are 2700 methodological centres and such is the number of methodologists and heads of the centres. Their main functions are: organisation of methodological work, improving competence of teachers, educators and other personnel of public education, study, generalise and propagate better pedagogical experience.

Experienced staff, who possess higher education and experience of pedagogical work of not less than 5 years work in the districts' / towns' methodological centres.

Some institutes of in-service education pay serious attention to the improvement of competence of Heads of District and towns' methodological centres. It has become a tradition to conduct with them 2-3 seminars' in a year. The institutes pay particular attention on the acquaintance of Heads of methodological centres with the centres and schools fucntioning well.

Individual and team visits of personnel of institutes are organised to extend concrete help to district and town's methodological centres. During their stay in the districts the methodologists acquaint themselves and study the position of teaching and quality of knowledge of pupils, help in conducting seminars of administrators of schools and teachers, participate in study and generalisation of foremost pedagogical experience. Main attention is paid to the condition of re-education of teachers for work on new programmes.

6. Pedagogical exhibitions

It is one of the forms of spreading foremost experience. It shows the achievements of public education and pedagogical science. It advertises more effective methods of teaching and education, system of work of foremost teachers and schools, komsomol and other pupils organisations. It demonstrates new models of study and laboratory equipment and visual aids etc.

Pedagogical exhibitions are of different levels: Republican, terrtorial, regional town, district, school. They are permanent, temporary or occasional. The occasional exhibitions are organised on theeve of teachers meetings, conferences and congress. The pedagogical exhibitions are organised by the Ministry of Education, Departments of public Education, local committees of the professional unions of personnel of education, higher school and scientific institutions, scientific research institutions. These exhibitions are organised often in the institutes of in-service education and district pedagogical centres and similarly in the school, pre-school and extra-school institutions pedagogical institutions and teachers' clubs.

The establishment of pedagogical exhibition is ~~predagogical exhibition is~~ preceded by a study and generalisation of pedagogical experience. The material for display is determined during this process.

In the exhibition onecan find display of different documentary and illustrated materials: unit planning, short lesson plans, methodological working, plans of work of schools, exercise books of pupils, drawing, production details, different types of documents on production education stenograms of conferences, and evenings, albums and wall newspapers etc.

The institutes of in-service education of teachers are well staffed from amongst the better teacher-methodologists of the territory. In 169 institutes of in-service education 3,500 methodologists are working. Rendering sufficient help the methodologists work with departments of public education, administraters of schools and teachers in improving their competence and generalisation and propogation of foremost pedagogical experience, some of them participate in the experimental work sponsored by the Academy of Pedagogical Sciences.

Implications for India

In the opinion of the author the following are some of the points which emerge out of the above discussion:

1. Centres of in-service education be established in every district. For the states where decision has been taken to close down the uneconomic pedagogical institutions, it is advisable that these institutions

be converted in to centres of in-service education. These centres may have a section on methodology as well.

2. In the State' Institutes of Education some of the personnel be made responsible for study, genersalisation and propagation of foremost pedagogical experience. They should develop methodology for studying, generalising and propagating the foremost pedogogical experience at the State level, district level and even at the school level.

3. Padagogical exhibitions may be organised at National, State and district levels. They may be made permanent.

4. Before introducing any major change in the curriculum of school subjects, the teachers must be re-oriented for it under a phased programme.

5. We can also take in to consideration the practices of German Democratic Republic and Polish Peoples Republic. In these countries in every district where they have 500-800 teachers, besides inspectors they have method experts in every district. The method

experts work in the Schools with a weekly load of 8-10 hours getting salary for full load of work. For two-three days they work in the school and for the rest of the week they work as method experts in the department of public education. The method expert works with the teachers of that subject which he himself teaches and he not only tells about methodological improvement of the process of instruction but also demonstrates everything in his lessons.

INTEGRATED APPROACH TO PRIMARY CURRICULUM

D.S. Rawat

The present primary school curriculum is unrelated to the child's environment and needs. There is a gulf between 'school' and 'life' and this gulf is unfortunately taken for granted. The research findings indicate that children develop abstract and formal reasoning not before 11 to 12 years of age and that younger children percieve their environment as a whole and not the sum total of phenomena. Hence, water-tight compartments of experiences as 'science', mathematics', 'history' etc, will spoil the meaningfulness of knowledge to the child. Further, this process of compartmentalisation is unpedagogical and it again requires another process of coordination and synthesis by the teacher. It is likely to loose some of the natural relationship in this process of coordinating and synthesising and thus there is always a very great probability of deterioration of meaningful experiences into meaningless bunkum for the child making the whole process of education a sheer waste.

It is now being universally realized that, in primary schools, an integrated approach to curriculum should be used instead of the subject approach. The countries like Britain, Sweden, Belgium have adopted the integrated approach in varying degrees to primary curriculum. The research evidence also shows that pupils who are taught through integrated approach develop their thinking and acquire the skill of 'learning to learn' better than their counterparts who are taught through the subject approach. The subject approach makes the education unrealistic and restricts the child's knowledge only to certain things taught in the class.

Broadly speaking, an integrated approach may be defined as below:

An integrated approach to the primary curriculum cuts across subject boundaries in providing meaningful work for the children. It is an approach which, by basing his work to some extent upon first hand experiences of the world in which he lives, enables the child to acquire knowledge, skills, values, attitudes in such a way that he can perceive relationships more easily than if he were made to master isolated skills or particular components of knowledge which is contrary to the psychological and pedagogical approach to learning that we know.

The integrated approach to curriculum provides apportunities to the child to learn for his ownself without depending too much on the outsider. He makes his own choices and discovers his own abilities.

The principles of educational psychology also support the integrated approach as it is very much in tune with the thinking process of the child.

Piaget's research findings are worthwhile to be mentioned to support the case of integrated approach. According to the research of Piaget children below the age of four years are egocentric in their apporach to perceptual situations. Between the age of five and eight years, children can handle the perceptual situation in a rational manner at least intiutively. Between eight to eleven years children prepare themselves for formal and abstract reasoning although they still think around a situation in many different ways. According to Piaget the child can do formal and abstract reasoning only after the age of eleven although there are still some individual differences.

Thus the researches carried out by Piaget, Susan Issacs, Bruner etc. support the view that during the compulsory schooling stage (6 to 14 year) the curriculum should be based on topic or theme rather than on subjects.

Though there is a growing realisation that at the primary stage education needs to be made meaningful but it has not found a place in the actual practice. To make education interesting, meaningful and realistic, we may have to relate it to the child's environment by using the integrated approach in which subjects will not be taught in a formal way but a topic or a thematic approach will be used. We may well realize it that any undue haste in adopting this approach may prove to be fatal. This is why progress towards integrated approach should be a phased process. We shall have to decide whether we require a fully integrated approach or a partially integrated approach. In the former one we may have to provide the child, the opportunities for learning to learn. The integrated approach to curriculum would demand that the child spends his time outside the class room to explore the environment to get first hand knowledge. For this purpose, the class may be devided into sub-groups for conducting projects in which children learn the process was well as the content of the subject; but the difference is that they understand a concept without its being labelled with 'mathematics' social studies' and so on. Children will have sufficient opportunity to do art-work, music, mathematical calculations, scientific discovery etc. in an integrated way during the project and after its completion also, when they will present a report of the work and exchange notes.

The integrated approach will need an imaginative teacher who understands all types of skills, values, knowledges, understanding and attitudes to be developed in the child during different age-groups. Consequently, teacher education programme would also need a modification.

The integrated approach to curriculum would not deny the use of the text-books and other instructional material. The child working on a project will strongly feel like consulting relevant material and literature. Similarly mass-media also becomes more important in this approach.

The integrated approach provides ample opportunity to the child to work to the best of his capacity. It does not prescribe a set formula for each child, a thorough assessment of a child at regular intervals, therefore, finds an important place in this approach.

In India it can be started as a pilot project in which 20 schools may be selected which may be given full autonomy by the State Department of Education to use its own curriculum approach. Teachers for such schools may be trained through inservice education. Suitable material may be prepared; guidance to the teachers may be made available and effectiveness of this approach may be scientifically studied.

To reduce educational wastage and to make primary education more effective, meaningful, realistic and interesting this approach may be advantageously tried out.

STRUCTURAL-SITUATIONAL APPROACH TO THE TEACHING OF ENGLISH

S.N. Saha

The command of a language is not simply a habit but a skill. While habit ensures automaticity, skill requires that the students are able to manipulate structures and thus have an adequate feel for the language.

Teaching English as a second language is a difficult process since students learn the second language through the habit patterns of the first language. Moreover, the basic element of compulsion is lacking in the learning of a second language. This necessitates selection and grading. They are based on frequency and usefulness. The grading of the items should reflect a concern to proceed from the known to the unknown so that each item leads naturally on to the next which builds upon it.

As is said earlier the teaching of English as a second language is a specialised skill. It is an accepted fact that English is best learnt by communication between teachers and learner by direct association of the symbols and their referents, and not by grammar-translation method. The latest to dominate the teaching of English is the structural approach. To see that structural approach is successful, it has to be situation-oriented. It is true that the number of real situations possible in the class room is very small as compared to all those which occur outside it. But a resourceful teacher can improvise quite a number of situations through which to drill the structures. The criteria that ensure the success of the structural approach lie in formulation of (a) appropriate situations, (b) meaningfulness of stituations and (c) connectedness.

The students will be given more and more opportunities to listen to the language before they are asked to use it. This listening to language will establish in them some confidence and a feeling of security.

Gradually the students will be asked to repeat the structures, to produce structures from memory, to substitute the structures, to carry on simple directed conversations, to use the language by looking at a picture with composite scenes- a lot of different objects and activities in progress. In the process the stretch dialogue may be a very useful technique. For example, 'should' and 'should not' may be meaningfully presented in the following dialogue:-

Teacher: Remesh, I told you that you should see the doctor. Have you seen so far?

Ramesh: Yes Sir. I sawthe doctor yesterday.

Teacher: What did the doctor say?

Ramesh: He said I should take care about my health.

Teacher : That's all.

Ramesh: He said I should take exercise regularly, I shouldn't take fat. I should take a rest after my meals, I should stop worrying about my health, etc.

The dialogue as outlined above should be further extended so that it is possible to get maximum utilization of the teaching point. Not only that. The teacher should strive to vary the stiutatons. This will guard against the mechanical, repetitive drills and the students will unconsciously absorb the language in as many situations as possible.

It is needless to emphasize that children enjoy activities. Whatever the rigour of language learning, it is lost sight of in the interest of activities. Once they find that they are actually using the language to enjoy stories and play games, to sing songs and act playlets, they will feel not only that the language is well worth learning but that they themselves are making rapid progress in doing so. Stories, songs, playlets, etc., may be interspersed with meaningful situations such as, greeting new acquaintences, buying goods in various kinds of shops travelling on a bus, making a telephone call, asking the way, borrowing a book from the library, finding out the timings of the trains at the railway stations, etc. The foregoing are some of the best ways of contextualization and repetition simultaneously. The learner feels a personal involvement and an inner urge to express himself and thus absorb uncosciously a lot of language.

GROWTH OF STATE BOARDS OF TEACHER EDUCATION IN INDIA

L.C. Singh

Government of India's declaration of 1913 provides that "eventually under modern system of education, no teacher should be allowed to teach without a certificate that he has qualified to do so." This declaration is controlling the policy of teacher education in different States even to-day. To day Teacher Training Institutions are like factories producing licence holders. There is an isolation between teacher training programmes at different levels. Since education of a child is a total process teacher education should also be viewed as an integrated whole and a continuous process rather than compartmentalised and isolated. Further, unless the training of teachers is systemized properly and based on sound lines the entire planned programme of education is bound to fail. In fact, teacher education was not properly planned so far. Its importance was not fully realized and remained a neglected aspect of education. This resulted in deterioration of standards.

Teacher education in India suffers from many draw backs. There has been haphazard and sporadic growth of teacher training institutions particularly during the post independence period.

There has been no coordination between various agencies responsible for teacher education either at the State or National Level. Further, there is no continuity between various levels of teacher education in this country. There is not a single agency to set standards, evaluate programmes. There are no agencies to coordinate programmes and promote research in teacher education. Lastely, there is not much of a link between the teacher training institutions and the needs of schools. Only piecemeal attempts were made to link up the two.

All this shows the need for planning, coordination, set standards and periodic programme evaluation of teacher education. There is a need of an agency to devote full time attention for planned development of teacher education. In past, improvements were suggested to improve the situation. Various Study Groups and Study Teams tried to study and suggest ways and means to improve teacher education. In 1952-54, International Team on Teacher and Curricula in Secondary Schools, considered this problems of teacher education. It studied the system of Area Training Organization (A.T.O.) as practiced in United Kingdom. The Mc. Nair Committee had a lot of debate on the question of A.T.O. Two different views were expressed. Some of the members placed general responsibility of training teachers upon Universities and recommended establishment of University, Schools of Education. Other members of the Committee recommended " Joint Board Scheme". According to this scheme, Training Colleges were equals in the task of training teachers. The Joint Board was put responsible for the organization of an Area Training Service. This suggests that the principle of involving Universities in all training programmes. The International Team recommended, "In first place all training of teachers be brought under the same authority which will deal with it as an integral process, and in the second, that active cooperation be established between the University, the Training Colleges, the Departments of Education of the schools in the matter of teacher training." However, this report was mainly dealing with the training of secondary teachers and they thought of bringing into existence Area Training Organization, as was established in U.K.

The International Team suggested three alternatives for different States and Universities.

1. There should be one A.T.O. connected with each affiliating university in a State and it should comprise all teacher training institutions within the geographical area over which the jurisdiction of the university extends. This would mean the existence of more than one A.T.O. in a State if the one. The A.T.O. should be composed of all appropriate interests.

2. The second alternative would be to have one A.T.C. in each State, irrespective of the number of Universities in the State, with the different universities agreeing to combine for the purpose. These would comprise all the teacher training institutions within a State and would again be composed of all appropriate interests.

3. The third alternative would be to make the A.T.Cs into independent bodies created by law, and composed of appropriate interests including the universities.

The second landmark in the improvement of teacher education is the report of the Study Group on Training of Elementary Teachers which was set up by the Council of Elementary Education in October 1962. The Study Group suggested the creation of State Council of Teacher Education consisting of Director of Education, Representatives of University Department of Education, Representatives of training colleges and secondary school teachers, Representatives of teachers training schools and non-official educationists. The Council should have powers to spend the funds placed at its disposal and should have an atonomous character. The Council will deal that teacher education at all levels - pre-primary to secondary - and will have the following functions:

1. To prepare programmes for the development of teacher education and supervise their implementation;

ii. to set standards for teacher education;

iii. to confer recognition on institutions which fulfil the requirments prescribed by the Council.

iv. to prepare the curriculum and syllabuses according to which the training programmes, both preservice and inservice, should be carried out;

v. to conduct examinations and award certificates and diplomas;

vi. to arrange for the inspection and supervision of the training institutions recognised by it;

vii. to coordinate the training programmes and collabor with other agencies in the State and outside, in furtherance of its objectives.

In 1963, the recommendations of the Study Group were reviewed by the Committee on Plan Projects headed by Prof. B.N. Jha. The Committee recommended that there can be a State Council for Teacher Education to assist as proposed by the Study Group. It could have only advisory function and could work in cooperation with the faculty of education in different Universities. Thus Universities and their Departments and Boards training colleges, training schools, inspecting officers, educational administrators should have representation in this Council. In this way the university would have an Area Training Organisation within its geographical jursidiction.

The Kothari Commission (1964-66) also supported the idea of establishing State Board of Teacher Education as an advisory body of the State Government. It recommended that the Board should have the representatives of the following agencies.

1. University, 2 State Department of Education

3. Principals of training institutions,

4. Representative of the association of teacher educators and teachers.

It recommended the functions of the State Board of Teacher Education as follows:

1. prescribing standards for training institutions;
2. improving curricula, programme, examinations, text-books and instructional materials for teacher education;
3. Prescribing conditions for the recognition of training institutions and arranging for their provisional inspection;
4. Offering consultative services to the institutions;
5. ensuring that candidates completing the prescribed courses are competent to teach in the schools of the state; and
6. preparing plans for the immediate and long-term development of teacher education, both qualitative and quantitative.

In persuance of the above recommendations, the States of Maharashtra and Gujarat have recently established State Boards of Teacher Education in their respective States. Other States like Rajasthan, Andhra Pradesh, Uttar Pradesh are planning to have similar agencies in their States.

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The philosophy of non-grading is based upon the knowledge of child development and the learning process. It takes into consideration the differences between children and the differences of capabilities within each child. Children differ not only in age when they enter school but also in mental, physical and emotional maturity. Here each child progresses according to his own pattern and rate of learning and growth. Learning is a sequential process. Non-grading stresses a plan of continuous progress of each individual child. The child is not pushed from one level to another until he has mastered the level he is on. There is no retention as such and no skipping of levels. Ungrading avoids unnecessary repitition and gaps in learning.

The ungraded system is commonly limited to primary years. It is a plan that abolishes grades such as classes I, II & III and establishes a series of levels in its place. It emphasises a plan of continuous progress for each individual child according to his needs and abilities. The Education Commission has recommended that the first two classes should be graded as a single unit and should be extended to classes III & IV whenever possible.

UNGRADED SYSTEM

C. Mehra

The ungraded primary programme is an effort to find a better answer to the question of effective elementary school organisation. It tries to present an organisation which is more sensitive to the child's capacities, development, growth and progress. It is an attempt to adjust the educational work to the ability and speed of learning of the individual child. Each child could go as fast as he is able to or as slowly as he needs to in order to understand and master the material. Children are put in flexible groups in place of different grade levels. They move through the organised curriculum at different rates. It reduces boredom for the academically talented, who is not held back by the slow, and reduces tension in the slow learner who is not forced into failure by trying to keep up with the fast. Ungraded organisation is designed to promote an individualistic approach to learning in which each child is provided with the opportunity of continued success in a sequential curriculum geared to his rate of success.

Syllabus

The syllabus of the ungraded system is prepared to meet the requirements of a particular age group and not of a particular class. The student is free to progress at his own pace.

Instructions are individualised. Children remain busy in their self-study and on the assignments given to them.

The syllabus has to be divided into sequential teaching units.

Programmed learning, team teaching and auto-instructional material would be beneficial and useful for the ungraded pattern.

Language and Mathematics are to be emphasised with a view to developing a basic tool for learning.

Different Role of Evaluation in the Ungraded System

Formal examination has no place in this system. It does not accept any dichotomy of pass or fail. Examination in this system is used to diagnose the strengths and weaknesses of students and adjust the teaching programme to the student's needs so as to enable him to improve and do better than what he is doing at present. Remedial teaching work has an important place in it. It is essential to develop and maintain records of individual children to understand and know their rate of progress and guide them accordingly. Preparation of tools for evaluation is very essential. This is a very important aspect and should not be ignored at any cost. A little carelessness in this respect will risk the success of the innovation. The teachers may not be in a position to prepare evaluation tools themselves. Assistance from external agencies and experts have to be sought in this area. Teachers have also to be helped to understand and use these tools.

Advantages and Disadvantages

The entire stage i.e. classes I-IV may be called the ungraded stage of primary education. Four years is long enough for a child to progress at his own pace and make up the deficiencies at any period of this stage. Experiments in other countries have shown that even the slow learner completes all the levels within a range of 4 year time. It reduces the tensions and frustrations of slow learners as well as the fast ones. It would also help children coming from different background to advance at their own pace. It would reduce wastage and stagnation at the primary stage.

Organisation of a school on an ungraded pattern does not necessarily insure good teaching. It does provide a plan for continuous progress of each child at a rate suited to his ability. Mere abolition of examinations do not help because the wastage at the end of first year will accumulate and occur either at the end of second year (if classes one and two are combined) or at the end of fourth year (if all the four classes are organised on an ungraded pattern). A general slackness also creeps in.

Orienting Teachers

Teaching in an ungraded school is much more difficult than in a traditional school. The teacher has to be prepared for an individual student or a group of students. The teachers have to be helped and guided in the preparation of teaching materials and aids like sequential units, audio-visual aids and instructional materials etc. The teacher also has to know how he can help the students of various abilities to grow at their own speed and if possible to help them grow in groups retaining at the same time their speed of progress. Above all the teacher has to be made very clear about the concept of ungraded system because the ultimate responsibility of helping children in their studies and developing all kinds of material rests with him.

Implications of the Ungraded System

The syllabus of the ungraded system has to be drawn into a series of graded assignments so as to enable the child to progress at his own rate.

It emphasises the individualisation of instructions.

It does not accept the idea of a student's fail or pass.

Appendix - C

THE UNGRADED LOWER PRIMARY SCHOOL

(State Institute of Education, Maharashtra State, Poona)

The idea of an ungraded unit has been recommended by the Education Commission (1964-66) in its report.

" The examination at the end of Class I should be abolished and the first two classes (and whereever possible even the first three or four) should be regarded as one teaching unit, within which each child can progress at his own pace". (Page No.159).

The same idea is reiterated by the commission while formulating the curriculum for grades I-IV which form the Lower Primary Stage.

" We have already suggested that the first two classes of the primary schools should be graded as a single unit, and where ever possible this arrangement should be extended to cover classes III and IV." (page 188)

This ungrading of grades I and II has been suggested by the Education Commission as remedy to over-come stagnation. Stagnation is the result of failure in school annual examination and consequent detention in the same class for one more year. Children in rural areas who stagnate generally, leave the school. Stagnation, is therefore, one of the main causes of wastage. Wastage could be reduced if stagnation could be prevented and stagnation could be prevented by ungrading the lower stage of primary education, by having recourse to ungrading the annual promotional exam from one grade to another will be eliminated and students will progress in the ungraded unit at their own pace.

Attempts at ungrading the elementary stage of education have been done out side India. Here the objective is not the reduction of wastage or stagnation. Rather the scheme is aimed at enabling the children in the school to achieve their best ability. An account of ungrading a primary school of grades I-VII with a total enrolment of 50 students in a mountainous school district in Mexico, has been published. The non graded school has been defined as a school which provide for the continuous, upward progression of all pupils from the slowest to the most able. This experiment was conducted to achieve the following objectives.

(1) to ensure that each student masters the necessary basic skills and essential subject matter,

(2) to develop individual responsibility for independent study and progress,

(3) to encourage satisfaction in learning and (4) to encourage each student to develop his own particular talents to the maximum.

Philosophy behind the ungrading of classes:-

Education is a process in child's growth. Growth is a continuous process varying with children. It would be unwise and impracticable to restrict growth to a given dimension to all pupils in the same year. One may grow two inches, while another may grow three or four inches. Growth as applicable to physical world also applies to education. A child may grow rapidly in a given year and go beyond the limits fixed for that year while another child not reach the target fixed for the year. It would be unwise to prevent the former from going beyond the limit, while penalising the latter for his inability to cope with the standards laid down in the Curriculum for the year. The graded system introduces this unnatural position. It assumes that learning in all fields should proceed at uniform rate. It ignores the fact that a child who has advanced in one field of learning may be retarded in another. We know that there are wide differences between the abilities of children. Some time such difference get accelerated due to circumstances or environment. We can not escape from these differences. The ungraded school finds a way out for these differences. It has been pointed out by Goodland and Anderson in "The Non Graded Elementary School".

" The non-graded school is designed to implement a theory of continuous pupils progress since the differences among children are great and since these differences cannot be substantially modified, school structure must facilitate the continuous educational progress of each pupil. Some pupils will, therefore, require a larger period of time than others for achieving certain learnings and attaining developmental levels."

The philosophy of the ungraded unit can, therefore, be summed up by stating that since we can not modify the wide differences among children, we should modify the school structure to accomodate these wide differences.

Practical side of the philosophy:-

Coming to the practical side, it will be seen that the ungraded pattern is essentially a change in the organization of work. The curriculum will be reorganized into a series of self-study units on a longitudinal basis. This longitudinal arrangemnet will not be broken by grade packaging. Gradance necessary for upward progress of the child would be available to him from his class-fellows who have progressed on the scale and from the teacher.

One great achievement of the non-graded pattern would be the reduction of anxieties and tensions to which young children are subjected by the annual promotions and detentions. In the ungr aded pattern there would be no child who has failed or who is labelled as detained or repeating.

From the point of vastage also such automatic promotions would be positive in preventing vastage, because a child who is detained leaves the school and forgets what he learns, but one who is continuous will pick up latter on. Wastage would thus be prevented even if the child is allowed to proceed to the next higher class regardless of his failure in the promotional examination.

There are two ways in which the ungraded pattern can be introduced in our schools.

1. To start with the lowest grade and allow the children to progress on the self-study assignment scale at their own pace. This batch of children would form the ungraded unit. The other children in the school would conform to graded pattern of work.
2. To convert the whole school into an ungraded unit all at once so that all grades together will form the ungraded unit. Each plan has its own advantages and disadvantages.

The former procedure would take a longer time to eliminate the grade idea and also would build up an awakward situation in which the lower grades are ungraded while the higher grades retain the grade pattern. However for smaller schools, as single teacher schools, the latter pattern would be more advantageous, as it would be possible to form longitudinal groups for cooperative learning.

Planning of academic work in single teacher schools at Gargoti:-

The idea of the ungraded unit in implict in the work plan of the Gargoti single teacher school.

The plan envisages a grouping pattern gradewise and housewise. This plan is intended to foster the unitary character of the whole school. Such a unitary character is the basis of the ungraded unit.

Another device used to foster the idea of the ungraded unit is the combining of all the four grades for instruction in some subjects, as general science and social studies. In such a combination children sit together without any distinction of grades. In respect of activities, such as gardening, field trips, etc, children are grouped house wise. In such a grouping grades have no signifiance.

In respect of evaluation the work plan introduced the idea of common test for the school and no separate gradewise tests. The tests contained items scaled according to difficulty, begiming with the simplest items and ending with the most difficult ones. A child in any grade can attempt as much as he can, even items intended for higher grades. A child in grade II could attempt some of the questions intended for grade III as well.

The indigenous schools

The indigenous schools, which functioned before our present formal educational system, were all ungraded units. There were no separate grades and children learnt from the teacher in one group. Children progressed in their subjects at their own pace. If a child completes 8 lessons, he would go to the ninth lesson and another who completes the 12th wouldproceed to the 13th and so on. Such an ungraded pattern exists even now in specail schools such as Sanskrit Schools, they are guided by the teacher, or sometimes, by a senior student who has completed the relevant portion.

Dalton Plan

This ungraded unit pattern is to be found in the Dalton Plan. In this plan we have no grades. The quantum of work to be done for a stage is arranged into a series of graded assignments. They will be no grade rooms, but instead, subject rooms.. Pupils will go through the assignments in the school subjects in the subject rooms
at their own pace. There will be no annual exam., though
evaluation tests after the completion of assignments.The fina
/exams.will be
there will be/taken after all the assignements completed
by him. Many advantages are claimed for the Dalton Plan of work.

1. A student can progress at his own pace.
2. The student develops habitsof self-reliance initiative and self study.
3. The work done is through andsystematic
4. There is scope for emulation and self - evaluation in the scheme.

Essential Requirements:-

The ungraded unit, involves two essential requirements:

1. The provision of sequential lesson assignments in each subject of study. The entire syllabus for thestage would be arranged in to such sequential units.
2. The second feature is the indidualised instruction A child proceeds on the assignment scale at his own pace. There will be slow learners, absentees, late comers and also bright fast learners. None will suffer on account of others. The slow learners will not be penalised, but the fast learners will be rewarded. A ungraded unit does not mean any thing, if there is no provision for individualised insturction. Indiviual instruction which enables the child to ascend the ladder of assignments at his own rate is the key to the concept of the ungraded unit.

Features of the plan of work at Gargoti:-

The techniques of grouping, activities, seating gradewise and housewise, common instruction for the whole group in some subjects and the common pattern of evaluation of children's progress, irrespective of the grades in which the children may learn, are some of the features of the plan of work. These will gradually pave the way for the ungraded unit. They will build up the atmosphere of a composite unit in which older children will share responsibility with the teacher to help younger children to do their lessons and school work. Broadly speaking these techniques will try to provide work to each child which he can carry on independently. The self-study assignments which form part of the work in single teacher schools aim at developing among children habits of self reliance and independent work.

Techniques of individualised Instruction:-

a. The technique of association of senior students with junior ones. The senior will be responsible for the progress of the Junior in the series of assignment units. In difficulti the teacher will be rererred to.

b. Framing of assignment units on the pattern of programmed learning units. In the programmed units there will be questions (frames) involving blanks which the child has to fill in and verify his answers with those given in the margin.

c. Activity methods of teaching are effective and speed up learning. As such it would be a great advantage to reduce several items of learning in different subjects to activities. The activities provide the necessary motivation for a variety of learning items and develop children's initiative. The programmed learning units will suppliment the activity programme.

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NCERT

STATUS OF EXISTING CURRICULUM OF PRIMARY LEVEL IN RAJASTHAN

(**State** Institute of Education, Rajasthan)

The current curriculum in force at the primary and higher primary level in Rajasthan was revised in 1960 and was implemented since 1960-61 session. At that time the basic pattern of Education was in vogue, almost throughout the country and as such it was Basic oriented.

Prior to this curriculum only the main subjects were taught in the schools and there was little provision for preparing the child for social needs. Basic education envisaged the development of the social life of the child, in which productive labour and craft was the main spring, hence the curriculum in force was revised with the main objective of developing an all round personality of the child. As no curriculum and programme of education, however good it might have been at the time of its making can suit the needs of all times to come. We are living in an age of explosion in all branches of knowledge and for ever changing social-economic conditions. As such the system and content of education ~~need a continual change and adoption~~ need a continual change and adoption of these conditions. It was with this view that the Govt. of Rajasthan appointed a curriculum-Reform Committee in 1965 consisting of knowledgeable persons on the field of education and representation of practicaully all cadres of the Department.

Objectives:-

i) To give a clear guidance to the teacher, as to what and how much is to be achieved in each class in terms of concrete objectives.

ii) To define the frame work of objectives showing concepts, understandings, skills, attitudes and interests that are to be developed.

iii) To indicate to the authers, how text books should be prepared as to achieve the desirable out comes for which they are intended.

iv) To make the content of Education more upto date and to suit the need of the society at large.

v) To bring a coordination between the studies at this stage and those at higher stages of Education.

The Committee has considered and approved the syllabi prepared by various sub-committees of experts in various school subjects. It is expected that after approval by the Govt. it would come inforce from the session 1971-1972.

The salient features of the Curriculum:-

i) The major instructional objectives of each subject are mentioned in the beginning.

ii) The selection of content items is objective oriented.

iii) National objectives of Education get a reflection in it.

iv) Aspiration of the people find a place in it.

v) Elements of New Mathematics have been introduced therein.

vi) The syllabus of General Science has been laid down in more concrete terms and includes some items of higher standard in simple form.

vii) Work-Experience has replaced the teaching of craft.

viii) Social service also finds a place as an integral part of the curriculum.

ix) Syllabus of physical education has been made comparatively more practicable and interesting.

x) The syllabus of social studies has been made more realistic and is concordant with the national goals and aspirations.

xi) Scheme of evaluation has been appended to each and every syllabus and is in consonance with the need of the sub heads and content items of the subject concerned.

xii) Punjabi, Sindhi, Urdu, Sanskrit and Gujrati find a place as a third language from class VI and onwards.

xiii) The medium of education is Hindi. Wherever there is sizeable demand it is to be provided in minority languages in Rajasthan.

xiv) English is treated as a compulsary subject at the higher primary stage.

xv) Regional culture and history get a reflection at suitable places.

xvi) The F.P.S. system of measurement has been replaced totally by C.G.S. System .

xvii) Topic of world history to find a place at suitable places.

xviii) Broad base guidances to teachers has also been given wherever it was felt necessary.

Text Books:-

In Rajasthan there is an automomous body known as Nationalisation of Text Books Board, Rajasthan, which has been looking after the preparation, production, distribution and review of text books upto higher primary stage. No new sort of coordination is being developed between the N.T.B.

on one side and S.I.E. & SISE on the other. Preparation and review of textbooks has now begun to be looked after by academic institutions. This being a specialised type of work, it has been assigned to some persons on staff of the academic institutions such as SIE/Trg. College etc. as a personal charge. The work of preparing text books in Hindi, Social studies, General Science and Elementary Mathematics is going on. These are to be according to the new syllabus and based on new approaches and techniques.

Future Programme:-

i) To develop Advanced Courses/enrichment programme for the gifted children.

ii) To prepare Teachers Guides in each subject.

iii) To try out the syllabus in a few subjects e.g. Mathematics, Work Experience etc. under the direct observation of SIE or SISE and judge its practicability with the resources that we have today.

iv) To prepare suitable instructional material.

v) To evaluate the Text Books and improve them.

vi) To suggest and get prepared (if possible) suitable teaching aids.

THREE HOUR SCHOOL SCHEME

(State Institute of Education, Rajasthan)

Introduction:

The progress and prosperity of a democratic country like ours is largely dependent upon its educated masses. It is in view of this fact that our leaders and educationists have felt the need of universal education. Universalisation of Education can be done in two ways. The first way is to make it essential for every citizen to send his children to school. This can be done by making a law to this effect. Perhaps this method will not coincide with our democratic principles. The other alternative is to create such an enviornment in the country which may induce the citizens to send their children in schools. This will be an ideal situation to implement the idea of universal education. The second alternative can be made possible if we plan our educational system according to the needs of the parents who require the help of their children in their professions.

The scheme of three- hour schools makes it possible for the parents to send their children to schools without causing any hindrance to their professions and demostic affairs.

What do we mean by Three -Hour-Schools

Primary schools which are run for a period of three hours a day suiting the time convenience of parents and at the same time following the regular syllabus excluding crafts and games are called three hour schools.

Historical back-ground:

The State Institute of Education, Udaipur wanted to try upon a method to successfully implement the scheme of universal education without any legal binding to the parents. Thescheme of three-hour-school was, therefore, initiated by the Institute for the first time in Rajasthan. Panchayat Samiti Rajsamand was selected for this experiment. A preliminary survey with regard to timings suited to the parents of the children of school going age was made by the Vikas Adhikari, The main objective was to admit only those children in these schools who were at that moment not attending any schools-keeping in view the time covenience of the parents to spare them to attend classes. The majority of the parents agreed to spare their children in morning hours.

On the basis of this finding the scheme was launched on the 11th March, 1965 in the Rajsamand Panchayat Samiti. The main consideration was to adjust the school with the needs of the community and to proceed rapidly towards universal education. The result of this experiment motivated another Vikas Adhikari of Panchayat Samiti Shahpura, District Bhilwara to open three-hour schools in the area under his jurisdiction. His wish was fulfilled. Since then the number of three hour schools is increasing every year and at present there are 276 such schools in Panchayat Samities as well as in urban areas. The following table shows district wise number of three hour-schools:

S.No.	Name of District	No. of Panchayat Samities	No. of three hour schools
1.	Bhilwara	3	125
2.	Chittorgarh	5	39
3.	Udaipur	4	37
4.	Sikar	3	23
5.	Banswara	2	16
6.	Jodhpur	1	10
7.	Pali	1	8
8.	Dungarpur	1	7
9.	Jaipur	1	6
10.	Sirohi	2	5

Objectives of the Scheme:

The scheme of three hour schools was started with the following objectives:

i) To suit the time convenience of parents belonging to low income groups who require the assistance of their children in family occupations or professions.

ii) To solve the problem of irregular attendance, wastage and stagnation in order to achieve the goal of universal education.

iii) To complete the syllabus prescribed for primary education by runing the school for a period of three hours as compared to the six hour period of traditional schools.

Salient features of three-hour-schools:-

Following are the salient features of three-hour schools:-

i) These schools open daily to suit the time convenience of most of the parents.

ii) These schools work when the parents do not need their children to be with them and observe holidays/vactions. The parents need the help of their children most in domostic/professional work. However the number of working days, holidays and vacations in a session is kept the same as in other schools.

iii) These schools work in shifts of three hours daily.

iv) These schools follow the same syallbus as followed by the traditional schools excluding crafts, games and physical activities.

v) These schools encourage the students to take part-in the economic and demestic activities of their families and thus help them in having work experience in real life situations.

vi) The teachers of these schools make a survey of such children who are kept deprived of schooling and then persue their parents to send them to such schools.

vii) These schools pay special attention to the celebration of all important festivals in order to utilise the educational poteníalities.

viii) The teacher-guide books provide all the necessary guidance to teachers in running these schools.

ix) The teachers of these schools give a substantial time to parental cooperation for ensuring the education of the children.

Evaluation of the Scheme:-

The scheme was launched in the year 1965. The number of three hour-schools increased up-to the year 1967. Now it was thought fit to evaluate the scheme for the sake of future planning. Thus the evaluative study was conducted in May, 1967. The main findings of the study are as under:-

1. The scholastic achievement of the students of three-hour school is not in any way lower than the scholastic achievements of the students of the long established traditional schools of the respective areas.
2. The study reveals that the children of three hour-schools do learn somewhat of the family occupation by participation in them at home.
3. The position of enrolment of children in these schools is more promising than that of the traditional schools.
4. The syllabus practised in these schools is the same as that of traditional schools.
5. There is less wastage and less stagnation in those schools as compared with the traditional schools.
6. Daily attendance in these schools appear a little better than that of the traditional schools.

Recommendations of the study:

1. Three hour schools appear to be quite promising. This scheme should be tried out further on a wider scale in different parts of the state and after sometime it should be evaluated again.
2. There should be one teacher for one class in three hour-schools and an additional teacher should as a matter of course be given to the school as soon as a class is added to its structure.

Future Prospects:

Three-hour-schools have been able to increase enrolment to an appropriate extent in the places where they are running. State Institute of Education is intending to evaluate the working of these schools in the context of their objectives. The Director of Primary and Secondary Education has already issued a circular requiring every Panchayat Samiti to start a few schools on a experimental basis. State Institute is going to identify these areas where these schools can be profitably opened in order to increase enrolment. During this session (1970-71) SIE will train the teachers and E.E.O's. of at least two districts in this connection.

The NCERT has accepted and recommended "The flexible three hour schools" scheme as a pilot for all the states of India and it is hoped that the scheme will not only get a momentum but in time to come will go a long way in universalisation of elementary education and reducing wastage and stagnation at this level.

INSERVICE EDUCATION THROUGH CORRESPONDENCE COURSES

A. Nanda

One of the major functions of S.I.E. is to bring about qualitative improvement in school education. The quality of educatin imparted largely depends upon the courses of study followed in schools and the type of teaching done. As knowledge in all subject areas is exploding at a very fast pace, the courses that we follow in our schools become out of date in no time. We have, therefore, to revise our courses from time to time to ensure that our students are upto date in their knowledge in different subject-areas. We have also to see that teachers who teach our students acquire new knowledge and thus keep themselves abreast of fast developing knowledge. This may be difficult for them if they were left to their resources. The State Institutes of Education all over the country are entrusted with the responsibility of providing opportunities to teachers to have inservice education for getting new knowledge as well as for refreshing what they learnt as students. Besides needing new knowledge in content, teachers also need to know about methods of teaching which are developed from time to time.

Genesis of Correspondence Courses

Soon after its inception, the State Institute of Education, Delhi, was faced with the problem of preparing a large number of teachers to teach New Maths. to Higher Secondary Classes. This involved not only a new approach to teaching the subject but also learning of a number of new concepts. This work required considerable time for which teachers could not be withdrawn from school on working days as they were expected to teach their students. It was, therefore, decided to impart the new knowledge by preparing suitable lessons for teachers which they could study on their own and by arranging contact classes on Sundays in which they could discuss the new concept with a specialist.

This approach to inservice education has been extended to impart content in Geography which is now being taught as a separate discipline in Middle Classes instead of teaching physical environment to students in Social Studies. A large number of teachers who were teaching Social Studies have very little knowledge of Geography. They do not, therefore, have the confidence to teach the new subject.

The inclusion of a new paper, History of World Civilization, as an option to British History in the Hr.Sec. Courses of study gave rise to the urgent need of organising a content course in the subject to equip the teacher for teaching the optional paper.

Organisation of Correspondence Courses

When the need of organising a Correspondence Course is felt, a detailed syllabus is drawn up by the subject lecturer. He then discusses it with subject specialists in the University, or in the NCERT or in the Directorate of Education. After the syllabus is finalised it is broken into lessons or units. Then the lesson writers are appointed. The practice followed is to have lecturers of the University and of Colleges affiliated to the University for writing lessons for Courses meant for Higher Secondary School teachers. For courses meant for the Middle School teachers lesson writers have been appointed from amongst Senior Teachers, field advisers, and principals of Secondary Schools. They are asked to write the lessons within a specified period of time. After the scripts for lessons are received from the lesson writers they are studied by the Subject lecturer to ensure that they are based on the syllabus and the main points are duly stressed. If necessary the script is referred back to the lesson writer for making the desired modifications in the draft.

The heads of schools are then informed about the proposed Course so that the particular of teachers who are desirous of attending the Course are supplied to the Institute office. Teachers are put in different centres for the conctact classes. The basic consideration is the nearness of the Centre from their residence so that teachers are not required to travel long distance to get to a Centre. Teachers living in rural areas have to travel some distance because it is not possible to organise Centres in rural areas for want of minimum number of participants in a centre. Every care is taken to see that the number of teachers in a Centre does not exceed forty. The venue of the Centres are then finalised.

Each Centre is put under the charge of a tutor who is selected on the basis of his qualification and special knowledge of the subject. All tutors and teachers are supplied with a copy of the lesson one week before the actual discussion. These lessons are not dispatched to individual teacher by post but are distributed at the Centre. This arrangement ensures that all teachers get the lesson and saves the office of considerable work involved in dispatching lessons to individual teachers. If considered necessary, a meeting is arranged for tutors in which they meet the lesson writer to discuss the approach to be adopted for taking up the lesson in the Contact Class and also get the lesson writer's point of view. So far we have organised meetings for Mathematics and Geography as methodology of teaching the Class had to be discussed. The need for such meetings for History Classes was not felt by tutors as merely content had to be imparted.

Evaluation.

When the first Course was planned, the question of evaluation of teachers was discussed. It was proposed to administer a test at the end of the course to evaluate the Course as well as the teachers who attend it. At the end of the Course in New Mathematics for teachers of Higher Secondary Classes, when a test was administered in a fixed centre, it was noted that a number of teachers absented themselves. When a test was announced for teachers of History, there were strong protests and threats of boycott. It was, therefore, decided not to persist with it. However, teachers were asked to prepare charts or models on any of the themes covered in Course. This procedure was followed in Geography Course also. It is proposed to undertake follow up work to see how far teachers are making use of the knowledge learnt by them.

Details of Correspondence Courses Conducted:

1) A course in New Mathematics for Hr. Sec. Classes:

This Course was organised from Feb., 1968 to Jan., 1969 and as many as 600 teachers registered their names for it. It was planned to have thirty lessons in all spread over a period of 10 months. Tutors were selected from among College lecturers and those of our teachers and principals who had attended Summer Institute programmes organized by the University Grants Commission. While this course was in progress, an other inservice Course was organised by the Inservice Institute set up by the American Science Foundation. It conducted its classes in two centres in the evening. A number of participants of Correspondence found the classes of Inservice Institute more convenient and thus joined it. The attendance of teachers in the Contact Classes fell to 450. Those who dropped later felt that they could not cope with the speed with which they were taught in the Inservice Course. The practice adopted of having Centre Incharges for each of the Centres in this Course was not found very helpful so it was discontinued.

ii) A Course in New Mathematics for Class VI teachers.: The need for this course arose when New Mathematics was introduced in Middle Classes without preparing the teachers for teaching the subject by following the new approach. This Course was conducted with the help of mostly school teachers. It was, therefore, decided to introduce Supervisors who would be available to give on the spot guidance to tutors. This course was organised in ten units in 1969-70 and as many as four hundred teachers participated.

Another special feature of this Course was that it was based on the Course prescribed for class sixth only. The idea was to equip the teachers for the work they will be required to do in their respective classes.

This Course was repeated in 1970-71 for the benefit of those teachers who could not avail of the opportunity in 1969-70 especially those teachers whose services were transferred from the Delhi Municipal Corporation.

iii) A Course in New Mathematics for Class VII teachers:

This Course was organised in five units in 1970-71 on similar lines as the Course for teachers of class six. 600 teachers participated in this Course. This has to/followed by another Course for teachers of class VIII during 1971-72.

A large number of teachers who are not graduates in Maths. but are required to teach the subject in Middle Classes experienced some difficulty in following the Course and urged the authorities to organise a sequential Course to enable them to get their difficulties removed and doubts clarified.

iv) A Course for Teachers of Geography of Class VI:

The need for this course arose because of the difficulty of a large number of teachers of Social Studies to handle New Course in Geography. As they did not have the required background of Geography, they could not face the class with confidence. When planning this Course the syllabus of class VI was kept in view, contact classes were arranged to clarify the doubts of teachers and also acquaint them with techniques of teaching the subject. This Course was organised in ten units with the help of post-graduate teachers in Geography and principals who had specialised in Geography in M.A. class were held from Oct. to March, 1970 and as many as 400 teachers were able to take advantage of it.

v) A Course for Teachers of Geography of Class VII:

This Course was organised in ten units during 1970-71 on the same lines as the Course for class VI teachers. In this Course stress was also laid on map work and teachers were required to prepare maps, and a scrap book which they could use in class.

vi) A Course in History of World Civilization for History Teachers of Hr. Sec. Classes:

This Course was organised with the help of the lecturers of the University and its affiliated Colleges in 1970-71. The entire Course was divided into twenty three lessons. As the tutors were selected from the senior lecturers of the University and Colleges, the need for organising a meeting with the lesson writer was not felt. Their scholarly approach enabled the participating teachers who numbered 250 to learn a great deal on the subject which required intensive study.

General Difficulties

The organisation of inservice education through Correspondence has proved to be effecitve especially when a large number of teachers have to be covered in the shortest possible time. There is no difficulty in getting lesson writers when the payment made for lesson writing is reasonable. Turots required are also available for teaching in contact classes. They have been found to be very sincere in their work and they spare no effort to satisfy the teachers.

Though we have been able to attract a number of teachers in each of the Courses, the major difficulty faced in these Courses is the attitude of indifference of the average teacher. He joins the Course reluctantly. He does not attend the contact class punctually or regularly. He resents the idea of attending the classes on Sunday. He would rather have the classes on working days, so that he is not deprived of his weekly holiday. There is another group of teachers who have not missed even a lesson. They are not only punctual in attending the classes, but they take part in the discussion that follows a lesson. Some of them are not greatly interested in petty allowance allowed to them for meeting the travel expenses etc, but are keen to learn.

Another difficulty in organising the Course concerns the routine work involved in typing and cyclostyling the lesson and then preparing a large number of sets The difficulty increases when more than one Course is organised at the same time. To tide over this difficulty care is taken to have contact classes on alternate Sundays so that only one lesson has to be cyclostyled every week. An ideal arrangement would be to have the lesson printed, but being a Govt. Institution it is not easy to get the permission of the Controller of Printing.

APPENDIX - D

List of Resource Persons

1. Prof. S.V.C. Aiya,
Director,
NCERT.

Department of Text Books

2. Dr. R.G. Misra
3. Shri Y.B. Patwardhan
4. Mrs. Adarsh Khanna
5. Shri S.N. Saha
6. Miss Indira Kulshreshtha
7. Shri G.D. Sharma

Department of Pre-Primary & Primary Education

8. Shri D.S. Rawat
9. Shri S.C. Chaudhari
10. Dr. M.T. Ramji

Department of Science Education

11. Dr. M.C. Pant
12. Shri S. Doraiswami
13. Shri R.C. Sharma
14. Dr. B.D. Atreya
15. Shri G.S. Baderia
16. Shri K.J. Khurana
17. Shri K.S. Bhandari

Department of Social Sciences & Humanities

18. Shri T.S. Mehta
19. Shri R.C. Saxena
20. Dr. R.S. Vishisht

Department of Educational Psychology & Foundations of Education

21. Dr. A. Sharma
22. Dr. R. Murlidharan
23. Dr. C.H.K. Misra
24. Dr. M. Gonn

Department of Teaching Aids

25. Shri S.L. Ahluwalia
26. Shri Shankar Narayan
27. Shri Tilak Raj

Department of Teacher Education

28. Dr. R.H. Dave
29. Dr. E. Marr
30. Dr. L.C. Singh
31. Miss C. Mehra
32. Mrs. S. Sidhu
33. Shri J.C. Goyal
34. Dr. Nardev Kapruan

Guest Speakers

35. Dr. R.K. Bhan,
Director,
Pathfinder Fund.

36. Shri Romesh Chander,
Director,
(Settelite & Experiment)
Television Centre, A.I.R.

APPENDIX - E(i)

List of Participants

(First Seminar-cum-Training Programme)

1. Shri H.N. Sarma,
State Institute of Education,
Assam State,
JORHAT.

2. Shri K.M. Das,
State Institute of Education,
Assam State,
JORHAT.

3. Shri L. Pandey,
State Institute of Education,
Bihar State,
PATNA.

4. Shri S.N. Lal,
State Institute of Education,
Bihar State,
PATNA.

5. Shri G.N. Patel,
State Institute of Education,
Gujarat State,
AHMEDABAD.

6. Dr. P.S. Mishra,
State Institute of Education,
Haryana State,
KARNAL.

7. Shri Harish Chander,
State Institute of Education,
Haryana State,
KARNAL.

8. Shri M.L. Misri,
(Audio Visual Unit)
State Institute of Education,
Jammu & Kashmir State,
SRINAGAR.

9. Shri K.G. Rama Panicker,
State Institute of Education,
Kerala State,
TRIVANDRUM.

10. Shri S. Narayana Iyer,
State Institute of Education,
Kerala State,
TRIVANDRUM.

11. Shri N.A. Vaze,
State Institute of Education,
Maharashtra State,
POONA.

12. Shri N.V. Bhosale,
State Institute of Education,
Maharashtra State,
POONA.

13. Dr.(Miss) M.G. Premalatha,
State Institute of Education,
Mysore State,
BANGALORE.

14. Shri K.V. AnanthaKrishna,
State Institute of Education,
Mysore State,
BANGALORE.

15. Shri R.R. Das,
State Institute of Education,
Orissa State,
BHUBANESWAR.

16. Dr. S.C. Das,
State Institute of Education,
Orissa State,
BHUBANESWAR.

17. Shri G.N. Bhatnagar,
State Institute of Education,
Rajasthan State,
UDAIPUR.

18. Smt. D.L. Hiranandani,
State Institute of Education,
Rajasthan State,
UDAIPUR.

19. Shri A.A. Sadiqqi,
State Institute of Science Education,
Rajasthan State,
UDAIPUR.

20. Shri P. Rama Murthi,
State Institute of Education,
Tamilnadu State,
MADRAS-34.

21. Shri D.M. Rajammal,
State Institute of Education,
Tamilnadu State,
MADRAS-34.

22. Shri Mrityunjoy Bakshi,
State Institute of Education,
West Bengal State,
BANIPUR,(24-Paragnas).

23. Shri S.C. Agarawala,
State Institute of Education,
CHANDIGARH.

24. Shri M.L. Sharma,
State Institute of Education,
CHANDIGARH.

25. Shri Kalicharan,
State Institute of Education,
DELHI.

APPENDIX - E(ii)

List of Participants

(Second Seminar-cum-Training Programme)

1. Dr. N.K. Patole,
State Institute of Education,
Maharashtra State,
POONA.

2. Shri C.L. Patil,
State Institute of Education,
Maharashtra State,
POONA.

3. Shri J.L. Dashora,
State Institute of Education,
Rajasthan State,
UDAIPUR.

4. Shri D.P. Vijayavergia,
State Institute of Education,
Rajasthan State,
UDAIPUR.

5. Shri R.S. Sharma,
State Institute of Education,
CHANDIGARH.

6. Shri Ram Murti,
State Institute of Education,
DELHI-6.

7. Shri S.H. Naqvi,
State Institute of Education,
DELHI-6.

8. Shri S.L. Gupta,
Deptt. of Pre-Primary & Primary Education,
N.I.E.,NCERT.

9. Km. P. Das Gupta,
Deptt. of Pre-Primary and Primary Education,
N.I.E., NCERT.

10. Smt. N. Sabharwal,
Deptt. of Teacher Education,
N.I.E., NCERT.

11. Shri D.N. Khosla,
Deptt. of Teacher Education,
N.I.E., NCERT.

12. Km. Daljit Kaur,
Deptt. of Text Books,
N.I.E., NCERT.

13. Km. Indu Seth,
Deptt. of Text Books,
N.I.E., NCERT.

14. Shri T.N.S. Bhatnagar,
Deptt. of Teacher Education,
N.I.E., NCERT.

15. Smt. Ravi Chopra,
Deptt. of Teacher Education,
N.I.E., NCERT.

APPENDIX - E(iii)

List of Participants

(Third Seminar-cum-Training Programme)

1. Shri Devakanta Gohain,
State Institute of Education,
Assam State,
JORHAT.

2. Shri C.S.P. Sinha,
State Institute of Education,
Bihar State,
PATNA.

3. Smt. P. Singh,
State Institute of Education,
Bihar State,
PATNA.

4. Shri M. Prasad,
State Institute of Education,
Bihar State,
PATNA.

5. Shri C.K. Patil,
State Institute of Education,
Gujarat State,
AHMEDABAD.

6. Shri A.J. Shukla,
State Institute of Education,
Gujarat State,
AHMEDABAD.

7. Smt. J. Meenakshikutty,
State Institute of Education,
Kerala State,
TRIVANDRUM.

8. Shri T.T. Varghese,
State Institute of Education,
Kerala State,
TRIVANDRUM.

9. Shri Sardar Singh Mehta,
State Institute of Education,
Madhya Pradesh State,
BHOPAL.

10. Shri Laxmi Prasad Vajpai,
State Institute of Education,
Madhya Pradesh State,
BHOPAL.

11. Shri A.J. Pawar,
State Institute of Education,
Maharashtra State,
POONA.

12. Shri K.D. Bokil,
State Institute of Education,
Maharasthra State,
POONA.

13. Km. S.N. Nagrathna,
State Institute of Education,
Mysore State,
BANGALORE.

14. Shri M.V. Rangunna,
State Institute of Education,
Mysore State,
BANGALORE.

15. Shri R.K. Sharma,
State Institute of Education,
Rajasthan State,
UDAIPUR.

16. Shri S.R. Mathur,
State Institute of Education,
Rajasthan State,
UDAIPUR.

17. Shri D. Balagopal,
State Institute of Education,
Tamil Nadu State,
MADRAS-34.

18. Shri D. Govindarajan,
State Institute of Education,
Tamil Nadu State,
MADRAS-34.

19. Dr. D.K. Verma,
State Institute of Education,
Uttar Pradesh State,
ALLAHABAD.

20. Dr. K.B. Singh,
State Institute of Education,
Uttar Pradesh State,
ALLAHABAD.

21. Dr. S.K. Chatterji,
State Institute of Education,
West Bengal State,
BANIPUR,
Distt. 24-Parganas.

22. Shri L.D. Gupta,
State Institute of Education,
CHANDIGARH.

23. Shri K.B. Maini,
State Institute of Education,
CHANDIGARH.

24. Smt. Devika R. Unnithan,
State Institute of Education,
DELHI-6.

25. Shri B.K. Nigam,
State Institute of Education,
DELHI-6.